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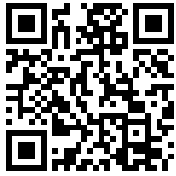

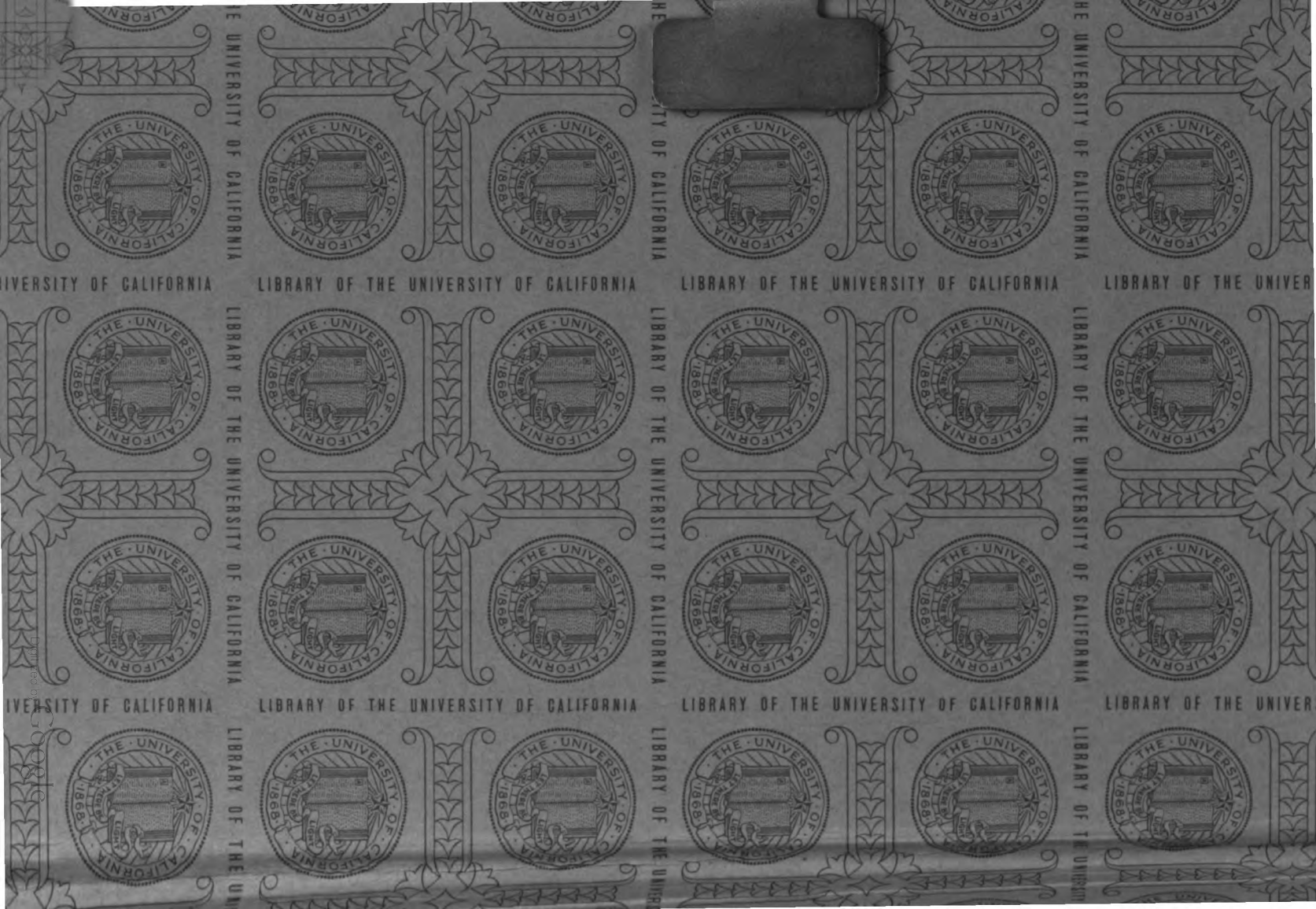
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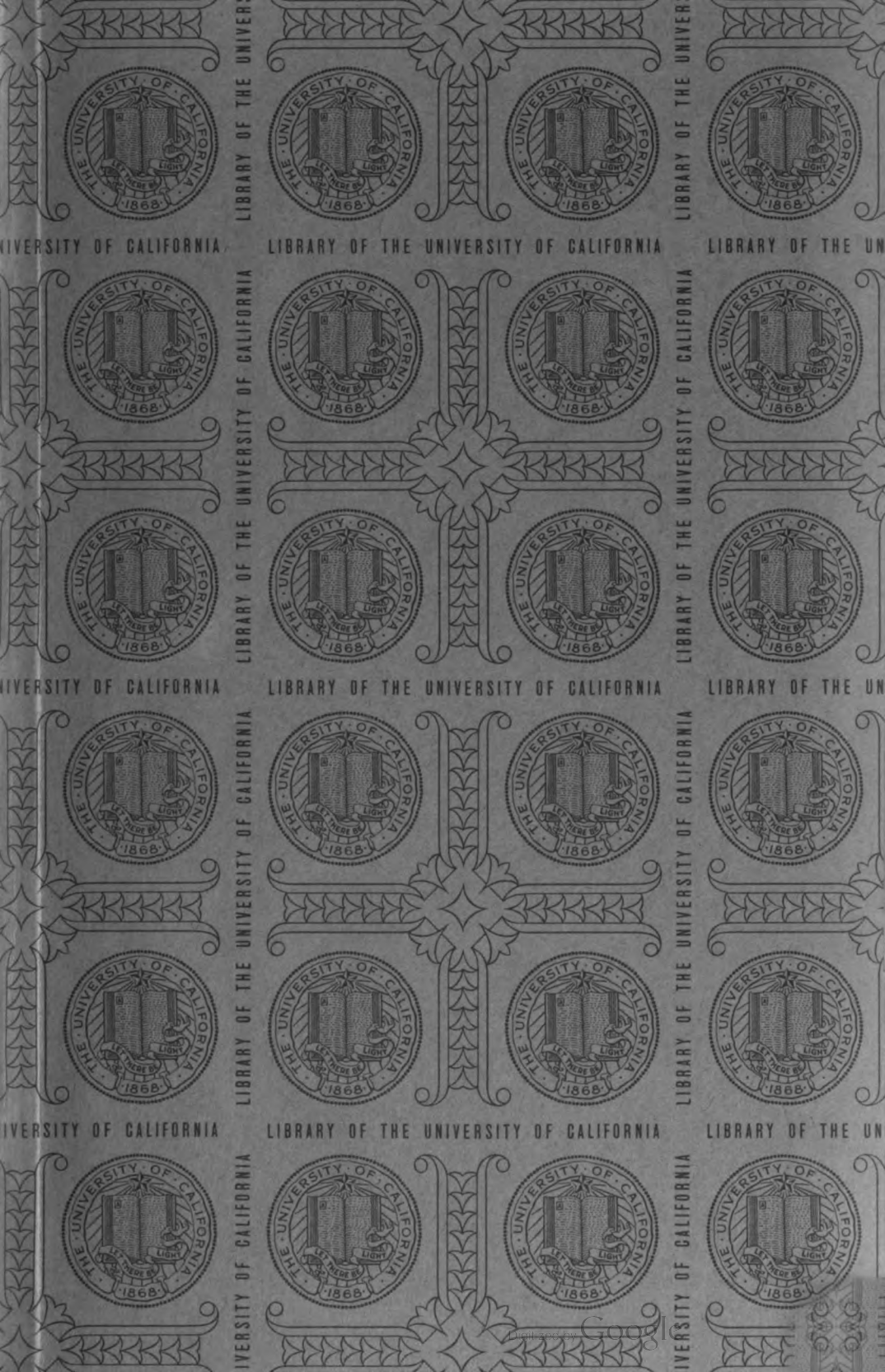

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THE R. A. F. QUARTERLY
AND COMMONWEALTH AIR FORCES
JOURNAL

EDITOR
GROUP CAPTAIN A. H. STRADLING, O.B.E., R.A.F. (RET.)
Assisted by an Air Ministry Advisory Committee of members of the Royal Air Force and Air Forces of the Commonwealth

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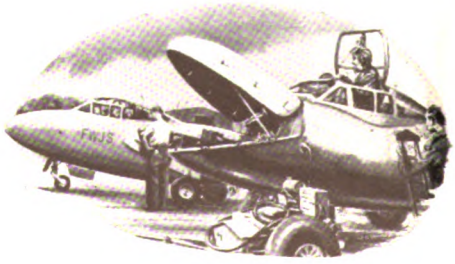

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EDITORIAL

PROBLEMS OF DEFENCE FOR THE NEW GOVERNMENT

TO assess the magnitude of the problems concerning national defence, with which the new Government is now faced, it will be necessary to review briefly what has taken place since the end of the Second World War. If in doing so we imply criticism, by suggesting what might or might not have been done, it will be unintentional, as only history will reveal with what success or failure the events leading up to the present crisis have been handled.

THE SUBTLETY OF MODERN WAR

To obtain a clear picture of the past six years it is necessary to understand the new concept of war, which enables countries to be *actively* engaged in hostilities, without the now outmoded formal "declaration of war."

A nation in possession of superior military strength, merely by the threat of using it, can conquer and occupy a weaker nation, by a gradual process of undermining its victim's will to resist by "Propaganda," "Diplomacy" and "Economic Pressure." To avoid the disaster of open conflict, the intimidated country is forced to concede a series of appeasements, which ends in its capitulation and absorption by the aggressor, without a shot being fired. That is the new war strategy.

This subtle and stealthy form of attack has succeeded time and again in recent years, without the employment of the aggressor's military forces. Because this strategy is just as dangerous as a "shooting" war, the same drastic measures should be taken to resist it from the very outset, as would be if the nations were at war in the old sense of that term. Should this resistance prevent the enemy from gaining all he desires by "Propaganda," "Diplomacy" and "Economic Pressure," to deter him from attempting conquest by force of arms, it is essential to possess a national, or allied fighting force of adequate strength.

Russia has been actively engaged in hostilities against Britain since 1945, if not earlier, employing this new war strategy. Undoubtedly she had this in view when she raced her armies to Berlin and Vienna in the closing stages of the Second World War; it is likely that her declaration of war on Japan a few days before that country capitulated was connected with her future hostile intentions.

Those conversant with foreign affairs must have foreseen much of what has followed since. The U.S.S.R. has always believed that the existence of the Soviet Republic side by side with Imperialist States for a long time was unthinkable, and that one or the other must triumph in the end and before that happened a *frightful collision* between the two would be inevitable.

Since we have been engaged in this war, call it "cold" war or what you will, *it is war*, to what extent have we resisted the aggressor by observing the "principles of war"? Take for instance:

(i) The selection and maintenance of the aim.
(ii) Maintenance of morale.
(iii) Security.
(iv) Concentration of force.

DEFENCE PROBLEMS

Owing to the almost total disintegration of our Royal Air Force after the last war, our most immediate danger was from attack by the greatly superior Russian

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Air Force. Should our aim not have been to ensure that we had, *without delay*, the largest, best equipped and most efficiently trained air force that the nation's economy would permit? Apart from the maintenance of a reasonable standard of living for all our people, this consideration should have transcended all others. If we had this aim, have we maintained it?

Knowing that nothing undermines the morale of a nation more than the knowledge that it is so weak that it must daily fear the military onslaught of a more powerful nation, add to this disunity among ourselves and loss of pride as from our very weakness we are obliged to eat "humble pie" time after time. Have we followed the second "Principle of War" by removing these dangers?

As to our "Security." Have we taken adequate action to deny the enemy vital information? What of Nunn May, Fuchs and similar enemy agents? Will this help to ensure the security of our bases and communications? Are not our vital war industries infiltrated by enemy agents? Is this "Security"? What of the last-mentioned "Principle of War" (Concentration of Force)? It is only from an attack from Europe that we are likely to have to defend ourselves, and yet such military forces as are available to us are scattered over the four corners of the world. Is not the dispersal of our defence forces proof of the successful strategy of Russia?

We made it clear earlier that we could only build and maintain defence forces which our national economy would stand. One of the gravest problems is the present state of our national economy. Even having rectified this and voted adequate funds for our defence, there are equally difficult problems. The first of these is "man power." It is known that a labour force of 175,000 will be required by the aircraft industry and ordnance factories by April, 1953, of which 160,000 will be required by the aircraft industry alone. In other industries essential to our defence programme, such as coal mines and railways, there are grave deficiencies. Yet man power in less essential industries goes up and up.

There is the problem of the enemy's agents scattered over the length and breadth of this land. Our morale can never be high while communist-inspired dissention exists among our peoples, setting class against class and raising political and individual interests above the need for national unity. Our operational bases and communications cannot be secure while those who give allegiance to the ideology of our enemy, if not more active support, are allowed to roam this country spreading enemy propaganda, undermining our economic stability and stirring up strife among our people. All of this under the cloak of a national parliamentary party and under the misguided conception that, by not suppressing this, we are maintaining a principle of democracy.

The new captain at the helm of this country's defences will undoubtedly expect the nation "to give him the money, the men and the materials," and we have no doubt that "he'll see the job is done efficiently." But what a task!

Never before in our history have we needed so urgently the loyalty and support of the "British workman." Never before has sound national economy been so essential to the hope of our survival as a nation. At the time of going to press the question of rebuilding our decayed economic position, providing sufficient man power for industries engaged in our defence programme, as well as those to fill the gap in our fighting forces, remain problems for our new Government.

We all need a change of heart that will put our country's need above those of self or political party. United we could rise to unthought-of heights of achievement. *Only out of unified strength and honest toil will eventually come those hopes of peace which we all so earnestly desire.*

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BLUE PRINT FOR WORLD PEACE

By Air Marshal Sir Robert Saunby,
K.B.E., C.B., M.C., D.F.C., A.F.C.

WHEN I discussed the future of air power in the October number of the Quarterly I said that we were compelled to face the unwelcome conclusion that the Atlantic Treaty Powers had no means at their disposal of preventing the Asiatic horde from overrunning Europe or the Middle East. Our sea power cannot help us, and no land power that we could conceivably create would be able to withstand the Communist armies. Air power, while it could not stop the advance of the horde, would be able to destroy the sources of Soviet military strength, and bring about the defeat of the Communists. Thus, although we could not prevent the countries of Western Europe from being ravished, we could rescue them, perhaps more quickly than the experience of the Second World War would lead us to expect.

This deplorable situation gives rise to many evils. The threatened nations are not reassured by the promise of rescue after occupation by the Soviet armies. They know that, by the time they were liberated, all their leading non-Communists and, indeed, almost everyone with any independence of mind, would have been murdered, and that their countries would have been systematically looted.

In these circumstances their morale is low, and they are tempted to make friends with the Mammon of Unrighteousness. They seriously question the wisdom of straining their economic structure in order to build up land forces which could never be strong enough, or numerous enough, to avoid being swept away by the Communist avalanche. In desperation some of their leaders are toying with ideas of "neutralism," though they must know that nowadays neutrality is no safeguard. Neither the strictest neutrality nor the utmost rectitude in international affairs will save any country that stands in the way of an intended Communist advance.

Therefore the nations of Europe put much more emphasis on preventing the Third World War than on winning it, and in this matter, at any rate, the United Kingdom is in the position of a European country. At present the only factor capable of preventing war is the powerful long-range bomber force and the stock-pile of atomic bombs now at the command of the North Atlantic Treaty Organization. So far this has sufficed, but as the Soviet stock-pile of atomic bombs grows it may gradually become less effective as a deterrent.

A new factor, however, has recently arisen. Not long ago Mr. Gordon Dean, Chairman of the United States Atomic Energy Commission, told a Congress committee that a new range of atomic weapons was being developed which would include "artillery shells, guided missiles, torpedoes, and rockets and bombs for use by ground-support aircraft." He said that we would shortly be in a position to use such weapons on the battlefield.

Here is a development which may well prove to be of the first importance. The introduction of these new weapons may enable air forces to smash up and destroy concentrations of troops from afar, in much the same way as shipborne aircraft can, as we saw in the Pacific in the Second World War, destroy whole fleets before they have even come within sight of each other. Vital military targets, concentrations of troops, guns and vehicles, could, perhaps, be obliterated with a suddenness and completeness never before achieved in warfare.

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There would thus seem to be some hope that aircraft using these weapons, backed up by guided missiles, might be able to render ineffective the great man-power armies on which the Communist Powers chiefly rely.

Of course, the Communists would, in time, be able to produce similar weapons. But we have a lead in this field, and we should be able to keep it. Also we should not, if we are wise, offer to the Communists targets comparable to those which, owing to their dependence on vast land forces, they would be compelled to offer to us.

It is possible, therefore, that air power will be greatly strengthened as a deterrent. It may even be possible to prevent the horde from overrunning Western Europe or the Middle East. A realization of this, added to the knowledge of what modern long-range air bombardment could do to the Communist industries and communications, may well prove decisive in preventing the outbreak of large-scale war.

But, it may be asked with much reason, even supposing that the air power at the command of the North Atlantic Treaty Organization can, and does, prevent war, what is to be the outcome? Are we to go on, year after year, decade after decade, spending a great part of our national incomes on vast armaments which at best will preserve an uneasy peace and which cannot put a stop to the cold war?

It is probable that in the United States this question will be asked with increasing asperity as the armed strength of the West grows to full stature. There will be those, and they may not be few, who will advocate saying to Russia: "End the cold war, stop breaking treaties, stop your lying propaganda, your obstruction and your chiselling methods, or else——!" If this should occur Russia may or may not back down. If she does not, the Third World War will begin.

Although I do not doubt that the Western Powers would win, it is certain that loss of life and destruction on an unimaginable scale would occur in all belligerent countries. Undoubtedly this is a real possibility, and the free world will need the wisest statesmanship and the coolest heads in that dangerous phase.

"Very well," you may say, "but what is the alternative? Is it not an unending era of insecurity, accompanied by staggering expenditure on armaments; a perpetual struggle to maintain a successful defence in face of the incessant advances and manœuvres of the Communist cold-war technique?" And you may well ask whether we propose to abandon to their fate the free peoples now under the heel of the Kremlin. Can we honourably buy peace at the price of their sacrifice? These are pertinent questions which require an answer.

There is an alternative. As soon as their armed strength allows, the Western Powers must go over to the offensive. Not a military show-down, but they must take the offensive in the cold war.

Before taking the offensive it is essential to define your object. It might be expressed in some such words as these: "Without resorting to armed force, to compel the Communists to abandon their expansionist policy, and to withdraw from all countries occupied since September, 1939. Then to bring them into a conference, where outstanding differences can be settled firmly, in the interests of all concerned." Is this within the bounds of possibility?

I believe that it is. The Communist success in the cold war has been due to a series of cautiously planned manœuvres, each leading to a climax, in which we have had the choice of resorting to force or giving way. The subject of each climax is carefully chosen, the opponent is manœuvred into an unfavourable situation, and the point at issue is never so vital as to be worth the serious risk of full-scale war. Until now, with the weight of armaments favouring the Com-

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munists, we have had to give way. In future, if we can learn how to play the game, with the balance of armaments in our favour, it will be Communists who will have to yield.

In the cold war the Communists have made free use of blackmail, lying propaganda and bad faith. We, of course, would have to forgo the use of these weapons, but I do not think that, by doing so, we should lose much.

The diplomatic campaign would have to be conducted by means of a series of small operations; probably very small at first, but growing in scale as the diplomatic initiative gradually passed into our hands. And at every climax the shadow of overwhelming air power at our command would be decisive.

In this way we might hope to break the grip of the Communists over those countries which they now dominate, and to force them back within their own territories. Of course, some risks would have to be taken, for if we are going to accept the cowardly view that no object is worth a risk, and let it be known that the Western Powers will not fight, whatever happens, we may as well put up the shutters. Events in the Middle East show clearly enough what occurs if one adops that line.

And all the time we must, using every means that science can devise, break down the isolation and ignorance in which the Communist rulers seek to keep their people. For the Communist empire has one transcendent weakness. It is built upon the shifting sands of lies, terrorism, rigid repression and forced labour. Its people must be surrounded by an iron curtain to prevent them from learning the truth about themselves and the rest of the world. It has been well said that the hostility of the Communists towards the free world chiefly springs from the fact that they fear our friendship more than our enmity. Friendship with the free world, leading to unrestricted travel and interchange of ideas, would spell the end of the dark rule of the Kremlin.

By contrast, the free democracies are founded upon a rock. No one would claim that our system is perfect and, in fact, it has many blemishes. But at least it is founded upon truth, justice and the free play of ideas.

I have sufficient faith in human nature to believe that mankind inclines towards truth and justice, rather than towards falsehood and evil. And I think that a study of history provides much evidence in support of that view. Man is surely not a fallen angel, but an intelligent being struggling, with God's help, upwards towards the light.

And I believe that, if war can be avoided, truth and justice will, in the end, prevail. The task which the dictators in the Kremlin have set themselves is an impossible one. They will not be able, indefinitely, to keep their people in ignorance of the world around them. They will never be able, by persecution, to kill ideas which seem to them dangerous to their dictatorial power. For ideas thrive on persecution, and in the long run mankind can be led but not driven.

This gives us our opportunity. Surely the least we can do is to see to it that our system appeals decisively to the whole world as the better of the two. We must strive to make it finer and more true. Justice, freedom, humanity and toleration—those are the Christian principles that will shine like beacons across and through the iron curtain, filling the hearts of men and women made empty by hatred, fear and envy.

And each one of us in the free world can help in two important ways. We must support rearmament and pay for it cheerfully. That is essential. But we can do more, far more, in the long run by living our lives in accordance with those four great principles. Thus we can hope to keep the peace with our armed strength, and, by our example, to prepare the way for the victory of truth.

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LIMITED and UNLIMITED WAR

By J. M. Spaight, C.B., C.B.E.

THE TWO WARS

A HUNDRED and fifty years ago General Carl von Clausewitz propounded his "brilliant theory of Limited and Unlimited wars," as the late Sir Julian Corbett called it.[1] It is more or less a commonplace now, but it was new then. Clausewitz, says Corbett, "saw that there was one class of war where the political object was of so vital an importance to both belligerents that they would tend to fight to the utmost limit of their endurance to secure it. But there was another class where the object was of less importance, that is to say, where its value to one or both of the belligerents was not so great as to be worth unlimited sacrifices of blood and treasure. It was these two kinds of war which he designated provisionally Unlimited and Limited."[2] The explanation of the expansion of England, Corbett held, was that she made use of limited wars. "The tendency of British warfare to take the lower or limited form has always been as clearly marked as is the opposite tendency on the Continent."[3]

Unlimited wars tend to be fought to the bitter end. Limited wars do not; they culminate usually in some kind of bargain or compromise. As we know from experience in our own day, a call for unconditional surrender is not unheard of in the one kind of war; in the other it is, in all normal circumstances, inconceivable. There are other differences, too. The limited wars of the future are likely to be localized, cordoned-off, contained wars; the unlimited tend to be more or less global wars. But the most important difference for the present purpose is that in the one kind of war the means of destruction will probably be (voluntarily) limited, in the other they will not. The belligerents will pull their punches in the limited wars; in the unlimited they will probably throw at the enemy everything they have. The unlimited wars are fairly certain to be wars in which there is a first-class Power engaged on each side and consequently a trial of strength, the issue of which will be nothing less than the survival of one or other of the great Powers as such. The necessity of survival has been, indeed, the main plank in the platform of advocates in the United States of uninhibited strategic bombing. The morality of such a manner of warfare depends, it is argued, on "whether a blitz application of total force is essential to security" and "whether our code of morals is more entitled to survive than that of our enemy."[4] One cannot conceive that the question of the survival of the American way of life could arise in any war less than a major one. The issue in a limited war will be of less gravity for any great Power that may be engaged in it.

The limited war, it must be emphasized, is not a war from which all but the attacking nation and the attacked stand aside and leave it to the immediate parties to fight out. In an article in *Foreign Affairs*[5] Mr. Hamilton Fish Armstrong stated that Greece, Turkey and Yugoslavia had little or no belief in "the possibility of a localized war." They believed, he said, that the Western Powers would be forced to intervene if any of the three countries were attacked. That is probably so, but it could still be a limited war. A limited war is something

[1] Corbett: *Some Principles of Maritime Strategy*, 1918, p. 43.
[2] *Ibid.*, p. 35.
[3] *Ibid.*, p. 65.
[4] Colonel Willis G. Carter: *Strategic Bombardment and National Objectives*, in the *Air University Quarterly Review*, Spring, 1951, p. 13.
[5] July, 1951, pp. 651-65.

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entirely different from a "piecemeal" war in which each country is left to shift for itself and is overwhelmed in turn.

THE KOREAN WAR

The war in Korea was an example of limited war, in the sense of being not only a localized war but one of which the issue, though a great principle was at stake on the United Nations' side, was never a matter of life or death for any major Power. It was, therefore, never likely to be fought to the last ditch. *The Times* said in a leading article on 18th August, 1951, referring to the cease-fire talks at Kaesong: "Both sides, the United Nations explicitly, the Chinese tacitly, have expressed the opinion that this is not a war which could profitably be fought to a finish." It might easily have become, however, an unlimited war. According to the evidence which General Marshall, the Secretary of Defence, gave before the Senate Committee on 7th May, 1951, it could have become one if General MacArthur's policy had been adopted. The Administration's policy, General Marshall said, aimed at confining the war and preventing it from spreading into a third world war. General Omar Bradley told the same committee on 15th May that General MacArthur's policy would have involved the United States "in the wrong war at the wrong place at the wrong time with the wrong enemy." In other words, the United States was reserving its strength for the big affair that might be coming.

The abstention from any action against the real bases of the communist forces, which were in Manchuria, was the cause of some complaint in the United States. Why, it was asked, were they granted the right of sanctuary? One very practical reply was given by Senator McMahon in Washington on 24th April, 1951. "I want to emphasize," he said, "that there are still other sanctuaries—we are talking in one of them right now. I refer to Washington and New York and Detroit and Denver and San Francisco. If American planes fly over the Chinese mainland, if American-assisted troops try to invade that mainland, if American ships attempt to squeeze it in a total blockade, how much time will elapse, Mr. President, before you and I listen day and night for the air-raid sirens here in Washington?"

THE LESSER EVIL

There was implicit in the Senator's words reason for hoping that limited war, of the old pattern, may become the fashion again and that the world wars of which we had such terrible examples in 1914-18 and in 1939-45 may be avoided. It is in the interest of the big Powers, and not of them alone, that this should happen. It is not a matter of the big Powers saving their own skins. The United States and others are very definitely not doing that in Korea. It is only an acknowledgment of the truth that limited war is the lesser of two evils. The task of the future will be to stifle the small wars before they blaze out into big wars. Wars are conflagrations and it is in the interest of all nations that they should not become prairie fires. An unlimited war is an unrelieved disaster for mankind. A limited war is bad enough, but it is not nearly so catastrophic in its impact and consequences. That is due in part to the fact that it is likely to be fought out with weapons whose capacity for mass destruction is far less than that of those which would probably be used in a major conflict.

In Korea, as we know, the atom bomb was not used. There were no objectives worthy of it there, a spokesman of the American Air Force said; but would it have been used if there had been? There were plenty in China, at any rate, but, actually, Chinese territory has not been bombed at all to date. Had the war been a major one there would have been a very different tale to tell, in all probability.

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Peking could hardly have escaped in that event. There is in the city, right in its centre, an important military objective, the so-called East Station, the main railway terminus. It adjoins the great gateway of Chien Men, where the Tatar and the Chinese cities meet and which is the channel of an unceasing flow of traffic between the north and south parts of Peking, a moving mass of pedestrians, cyclists, motor vehicles, donkey carts and rickshaws. One can imagine what the effect would be if a massive bombing attack were made on the station and the piles of dead and dying that would be heaped in the streets.

MODERATION IN SMALL WARS

That, at any rate, did not happen, though voices were heard demanding that something not less calamitous should. There was bitter fighting in Korea and the death roll was piteously long, but the destruction and the slaughter, grievous though they were, were not to be compared in magnitude to the harvest of blood and ruin which a great war would have garnered. There was definite evidence of a desire on the Allies' side to conduct the military operations without resort to the extremities of violence that had marked the final stages of the Second World War. Similar restraint may not be shown in an all-out conflict of major Powers.

Peace, it used to be affirmed in the days of the League of Nations, is indivisible. The dogma was always challengeable. Still more questionable would be an assertion that war is indivisible. Obviously, indeed, it is not. It can be split up into major and minor wars. The minor war is a kind of safety valve which can serve perhaps as a preventive of the major explosion. It is only in great wars that, in all probability, use would be made of the fearsome instruments about which the prophets of evil warn us. They would not be used in minor wars for various reasons—because the wars *are* minor and do not call for an all-out effort, because the belligerent who has the new weapons in his armoury would not wish to disclose the existence of them prematurely, because they will probably be very costly to produce and may be limited in supply, so that the tendency will be to reserve them for a really great occasion.

AIR OPERATIONS IN LIMITED WARS

The part which the strategic air offensive will play in a limited war will probably be less prominent than that which would be allotted to it in an unlimited one. In Korea there was more tactical than strategic action in the air. Even the Superfortresses took a hand in the work of co-operation with the ground forces. Ground forces are likely to continue to be primary for some years to come in all kinds of wars, but more especially in those of the Korean type. In global wars the long-range bombers, the successors of the B-36, will come into their own. In minor wars there may be, in fact, a tendency to revert to the pattern, brought up to date in some respects, of the wars which had been waged before instruments of mass destruction had been developed to their present proportions and of which the repercussions and consequences, bad as they were, were far less serious than would be those of a major, all-out conflict today.

A famous Frenchman, asked for his views on hell, replied that no doubt it existed, but he believed it to be uninhabited. One might misappropriate that idea for the present purpose and say that there is, doubtless, a kind of war which would be hell with the lid off, so murderous would be the weapons employed in it, but the odds are that we shall none of us see *that* hell. The very fact that these appalling instruments of destruction may be used in a great war will go far to prevent its coming. They are less likely to be used in small wars for the reasons already given.

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THE SPIRIT of DEFENCE

By Admiral Sir Denis Boyd, K.C.B., C.B.E., D.S.C.

WHEN asked to write an article for The Royal Air Force Quarterly the question asked itself, "What about?" My inclination was, of course, to write of the Navy and its aviation, with which I had some dealings, or of the whole Navy, or of the problems which beset us in what is called the defence of civilization. But these are comparatively easy subjects and others write of them who are more up to date than I. What I think is much more important, and incidentally more difficult, is to write of the spirit with which we defend civilization, and to attempt an attack on what is so patently second-rate in the average opinion on the meaning of life. In the description of a headmaster of a school, it referred to "his direct uncompromising hostility to all he considered evil." Whereas the modern tendency so funks the issue, that compromise, expediency and "after all, there may be another point of view," are all called in to excuse the burden of considering whether a thing is right or wrong.

In the play *The Holly and the Ivy* there is a passage in which the daughter, beset by difficulties mixed, as often is the case, with a little sin, says: "What is it all for? What I must know is why?" The father then, to her surprise, accuses her of being religious, pointing out that the first requirement of the truly religious is the feeling of a need.

Meeting thousands of people each year, I am becoming more and more conscious of how many suffer from what amounts very nearly to despair. Never was the need greater, never was England more ready than it is now, for a lead in the right direction, for under various influences mankind is in danger of losing its liberties.

The primary requirement is to overcome the horror of despair. Despair comes partly from idleness, and from a feeling of helplessness, of hopeless speculation.

Fear is common to all. Everyone fears another war and despair attacks our minds. Have we really got to go through it all again? Now honesty compels us to remember England in her darkest hour. Was there ever a period in the history of the world when a nation was inspired as England was then—when nearly every man and woman in the land acted with serenity and outside themselves? Later, it is true, as the danger passed, we shrank into our normal rather narrow, selfish selves—but with a memory that for a period we had been alive. Are we afraid of being great again, or are we afraid of the terrible boredom and the disgust we rightly had for under-the-counter and other selfish habits which later were our unhappy lot?

I cannot believe we need fear being great, for that brief period is a proud and happy memory, a memory that was repeated in every ship or regiment or squadron from time to time. The golden thread running through all these memories is that we knew what we had to do and were united in the doing of it. A great friend of mine in command of the *Bedouin* and two other destroyers was escorting a convoy on its last lap into Malta, when, as day dawned, he found two Italian 8-inch cruisers and four large destroyers facing him. He wrote the following unforgettable words in his diary: "I am in a happy position, I know what I have to do." He knew what he had to do because he had a clear-cut object, the safe and timely arrival of the convoy. We, too, if we would only think, know what we have to do. The staff colleges and training establishments go to great pains in their efforts to ensure that before we carry out an operation we should be clear

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as to its aim or object. What, therefore, is the object of Life? The greatest leader in history, Our Lord, laid it down as "Serve the Lord thy God with all thy heart and soul and mind and strength," and doing to others as we would be done by. The questioning spirit, "What is it all for?" involves us in constant difficulties. We must neither be frightened by the fundamental questions nor the extremely awkward answers that may come to them.

The real fear to which we are all subject is uncertainty. Look how we fuss when those we love are away from us. How anxious we are. Now all that fuss and anxiety comes from us, not from our loved ones, who for all we know may be having the time of their lives. The silly thing is that we have been told the answer—take no thought for the morrow. Our periods of greatness when we knew what we had to do were a terrific relief. We had no thought for the morrow, only for the fact that then and there we were doing something worthwhile and were, if we had any imagination at all, making history.

So bound up are we in planning and social theories which, regardless of their historical failure, promise the millennium, that, in other than great moments, we are getting used to sitting back and waiting for something to happen. It never does. There is one certain way of failing to reach a summit. It is to sit down in a pool of disillusioned self-pity and wonder why the funicular railway, which all the ideologists promised, has not begun to run.

This life today is ours and this day will never occur again. We would be wrong to omit thought for tomorrow if that thought were constructive and positive, but thought for the morrow which takes the form of "Oh, God, have we to go through it all again!" is not only helpless but faithless and, incidentally, remarkably stupid. I wonder how many man-days have been made gloomy by such unconstructive, unhappy and fatuous speculation.

There may well be another war, as wars are not created by men of good will but by evil men, and our national effort to improve men has not been very evident. But we today have the burden of making today worth while, of inspiring such a spirit that England, instead of sitting in its pool of disillusioned self-pity, sets about getting to the summit.

How easy to write vague generalizations like these, but what we want to know is, what is the practical application of them? What gave England her virtue and serenity in her darkest hour? Only this—and it applies equally to us now—we gave ourselves a purpose. All we did, however humble, was done as part of our nation's effort. This can be done again tomorrow. Work, that much better done; life, that little more alive; thought for others, more important than thought for ourselves. It looks rather pious and unrealistic and yet when we did it we were much happier in every sense than we are now. We were even (how old-fashioned!) good.

For that brief hour we had faith. Faith that England, as it then stood, with disaster looming in every direction, could rise superior to everything.

We even had faith in God, because, shame on us, no theory or social platitudes or political bromides would satisfy the desperate situation, and, having exhausted every man-made endeavour, many turned to God in that odd but human attitude which treats Him as though He were a goalkeeper. It was written in the reign of Charles II:

God and the Navy we adore
In times of danger, not before.
The danger past, all is requited,
God is forgotten—the Navy slighted.

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Since the war funicular railways have been promised, and a blind, serene faith has been replaced by unworthy successors, security and safety first. These are funicular railways leading rather to the Slough of Despond than the heights.

On most of the war memorials we read: "Their name liveth for evermore." We pay tribute to "The Few" each year, and promise we will not fail them. Our gallant dead, who died that we might live, must be astounded to see how dead our life is. It seemed at the time cruel that so many young men, who had seen so little of life, were taken from it before it had really begun. But the barren greyness of the succeeding years would scarcely reward their enthusiasm, for they, taking no thought for the morrow, lived what little life they had and lived it fully. We are hypocrites if we look for security and safety first with the memory of our dead fresh in our minds. We believe, if we are Christians, that they live, not only in our memories but in very truth, and the burden of being worthy of them, and of our heritage as Britishers and Christians, is a very real one.

I cannot conform to the idea that we fought and died for Democracy. We fought, and must always be ready to fight again, for a more worthy object. We fought to stop something hideous happening, a negative but worthy aim. We must live so that the abolition of liberty, which was the evil we fought, may become impossible in the world. It is a constant danger, for not only is the liberty of thought endangered by propaganda, using every known scientific aid, but liberties of every kind are jeopardized by mass psychology, by majority votes, by conscienceless committees. What a grand thing to be alive when so much wants doing, and the danger is so great! I do not refer to the danger of war, which will always be with us till men are good, but the much greater dangers of idleness and despair, for it is these, not war, that bring misery to the mind.

Where would Florence Nightingale have been had she put safety first? It was not the war that sickened her soul, though wars are horrible enough, but it was inefficiency and wrong ideals. She indeed had a direct, uncompromising hostility to all she held evil.

We lack an inspiring lead? Never was a lead more wanted? But let me remind you that it is we who inspire the leader. The miracle of Dunkirk called forth that glorious clarion call of Winston: "We shall fight on the beaches." The "Few" had died before Winston could electrify the world by his mastery of words—"Never in the field of human conflict"—but it was the "Few" who gave the lead.

1952

To all those who have throughout the past by their encouragement and active support of the "Quarterly," made it possible to offer to our readers a Journal worthy of the Royal Air Force, we offer our sincere thanks, and wish them and our readers, both at home and abroad, "A Happy and Prosperous New Year."

We hope that their good resolution for 1952 will be to recommend it to their friends, thereby increasing our steadily growing number of subscribers.

—The Editor.

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[Photo: Fairchild Aircraft

FAIRCHILD C-119 PACKET

The aircrew and three artillery forward observer parties, with their three jeeps, three trailers, signal equipment and twenty-two men (15,900 pounds), which this aircraft takes in one lift

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GIVE THE ARMY WINGS

By John W. R. Taylor

NEARLY a century ago the veteran U.S. Cavalry General Nathan Bedford Forrest gave his simple, forthright formula for winning battles—"Git thar fustest with the mostest." Nowadays we prefer to use more sophisticated expressions like "logistics," "portability" and "tactical superiority," but they add up to the same thing, as we discovered in the Second World War when, all too frequently, we lost battles because we arrived too late with too little.

In General Forrest's day the key to speed in war was the horse; today it is airborne horse power. The Germans knew this when they sent plane-loads of paratroops to capture Crete in 1941. Then they forgot it, and used their *élite*, highly specialized parachute formations as infantry in North Africa and on the Eastern and Western Fronts, where they were overwhelmed and destroyed just like any other infantry.

The moral of all this is clear and *must* be understood by a country such as ours, which has neither the money nor the temperament to raise a large volunteer army in peace time. Western Europe can never hope to match man for man the vast, threatening armies of the East. The best hope of successful defence is to station minimum holding forces everywhere, backed up by small, highly trained, superbly equipped, mobile units, ready for battle *immediately* wherever a breakthrough threatens.

Nor is such an organization useful only in a major war. The last few years have shown that trouble can break out at any time in any or all of a dozen places scattered throughout the world, and we already have sizeable wars on our hands in Korea, Malaya and Indo-China. Obviously, we cannot maintain large garrisons everywhere to deal with such outbreaks. The answer once more is to have small garrisons, backed up by powerfully armed mobile battle groups. *And the only way to get those battle groups where they are needed in time to avert disaster is by air.*

Transport Command of the Royal Air Force is therefore, or *should* be, one of the most important operational units of our defence forces. Ironically, it suffered most in the reorganization of the Royal Air Force a couple of years ago, when, instead of ordering newer and better aircraft for Transport Command, the Government cut back or cancelled contracts that had already been placed for existing types. This happened less than a year after Transport Command had helped to win a major victory in the cold war against Communism by its magnificent work on the Berlin air lift, and proved conclusively that little notice was being taken of the vital lessons of the air lift.

LESSONS OF THE AIR LIFT

Most important of these lessons is that air power in the shape of transport aircraft, no less than atom bombers or supersonic fighters, is a powerful weapon for maintaining peace, as well as for winning wars. Secondly, the air lift proved that few of the aircraft in service with either R.A.F. Transport Command or the U.S. Military Air Transport Service were really suitable for sustained, high-pressure air-supply duties. Only the Bristol Freighter and Fairchild Packet, fitted with large fuselage nose and tail-loading doors respectively, met the basic requirement for aircraft able to carry bulky cargoes, which could be loaded and unloaded quickly and easily. Most of the others had started life as luxury air liners and, although reliable, hard-working vehicles, they had small-diameter

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[Photo: Keystone Press Agency

AIRBORNE DIVISION

At the time this picture was taken, 2,000 men were being dropped at one time by the 82nd American Airborne Division, in manœuvres in which 60,000 Service personnel were engaged

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cabins fitted with small side-loading doors, often many feet above ground-level.

Even the Freighter and Packet were hardly big enough for the job, but the much larger Douglas C-74 Globemaster, which was introduced experimentally on the air lift, had to be taken off after a few days, as its concentrated weight began to break up the runway at Tempelhof. Lesson No. 3 was that the Globemaster would have been able to carry on its good work had its weight been spread over eight wheels of a bogie undercarriage.

This question of size is important. Big aircraft are expensive to build and appear at first sight expensive to operate; but an analysis of the over-all operating cost of the Globemaster, compared with the well-known twin-engined C-47 (Dakota) and four-engined C-54 (Skymaster), provides some most enlightening facts. For example, a task force of sixty-eight Globemasters could have carried all the 4,500 tons of food and supplies needed each day by Berlin at the time of the air lift, whereas it would have taken 178 Skymasters or 899 Dakotas to do the same job. The Globemasters need only have made 5,400 trips a month, compared with 13,800 by Skymasters and 39,706 by Dakotas.

Another important aspect of this comparison is that, whereas earlier types of transport aircraft could carry only troops and light, non-bulky cargo, the newer, bigger aircraft like the Globemaster and the British Blackburn Universal Freighter can carry almost any item of military equipment, including tanks, heavy lorries, field guns and anti-aircraft guns, complete with their crews.

EQUIPMENT FOR AN AIRBORNE ARMY

The heavy, long-range transport aircraft is therefore the "troopship" of the airborne army, and in this respect it is interesting to note that R.A.F. Transport Command is to receive the three giant Saunders-Roe Princess flying-boats, now being completed at Cowes, Isle of Wight. Each of these machines will be capable of carrying more than 200 fully equipped troops for 4,000 miles non-stop at 385 m.p.h., irrespective of whether airfields are available, making them the finest, fastest troop carriers in the world.

The big landplanes would, of course, be able to operate into forward battle areas only when large airfields had been captured or built. So, to back them up, formations of medium and small transports are essential. Best of the present "mediums" is perhaps the American Fairchild Packet, a twin-engined machine fitted with quick-loading fuselage doors and able to carry twelve tons of cargo, including light tanks.

More important, experience both during manœuvres and in combat in Korea has proved that troops and heavy equipment can be parachuted successfully into forward areas from these aircraft, avoiding altogether the need for forward airfields. Equipment so far delivered in this manner includes a nine-and-a-half-ton bulldozer, 155-mm. field guns and jeeps; and experiments are now being made with a type of universal container that would enable a gun and its crew to be dropped together, ready for immediate action on reaching the ground.

These medium-size transports are the backbone of the airborne army, able to carry it right to where it is needed, and not just to the nearest big airfield or patch of sheltered water. It is therefore good news that the Royal Air Force is interested in the Fairchild Packet.

But even these fine aircraft cannot do everything that is needed. There are many occasions when airfields are not available, and when use of paratroops is impracticable or inadvisable; for instance, in bad weather or rugged country where they would become scattered or split up into small, easily destroyed units. It was to meet this contingency that both sides developed the cheap, expendable

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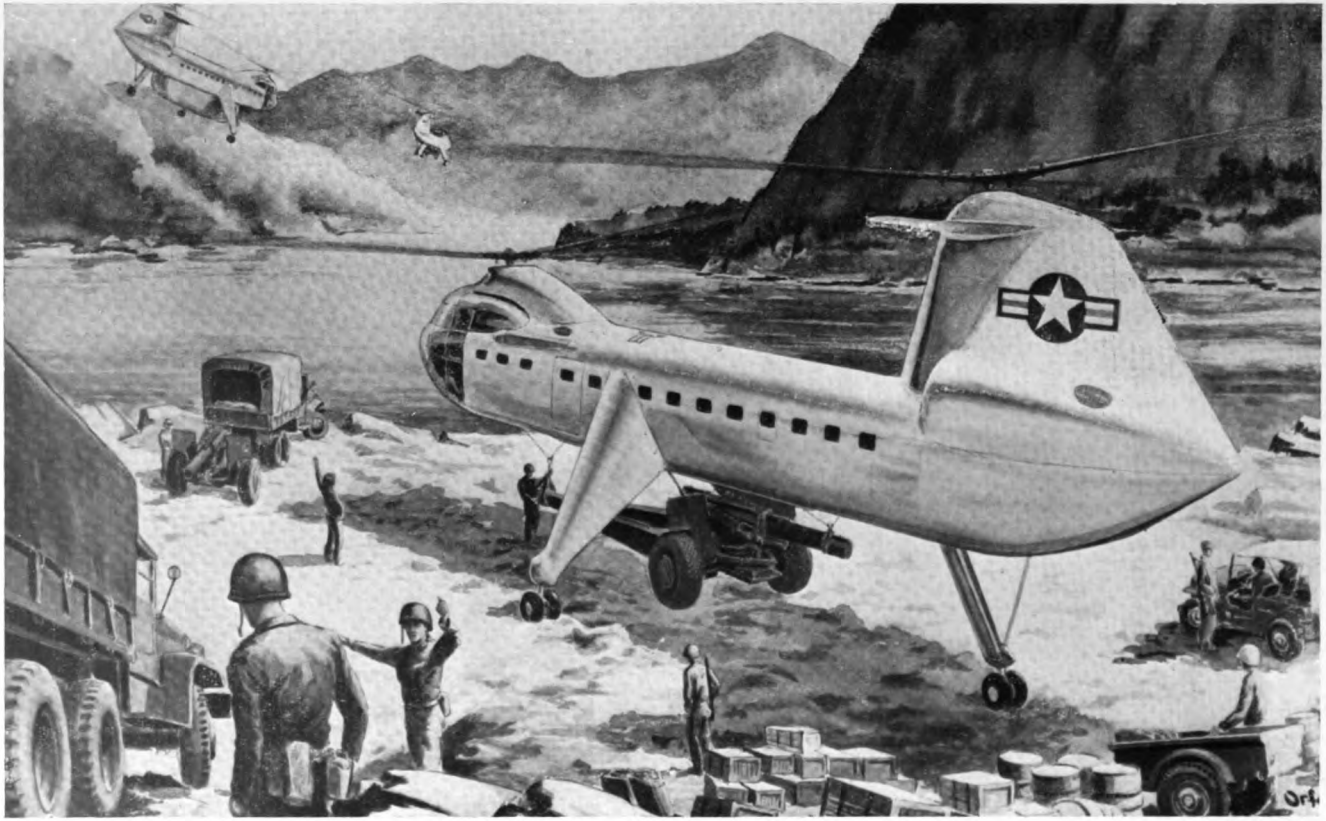

PIASECKI XH-16 HELICOPTER

This U.S. helicopter is being developed to carry forty troops, guns or light tanks over such obstacles as mountains, rivers or minefields; on the return journey for evacuation of casualties

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military glider in the Second World War. But, like paratroops, gliders have their limitations. Once they have been cast adrift they are at the mercy of strong winds; their pilots cannot choose a landing ground carefully because of the high rate of descent; although simply made of wood and canvas, they are still fairly expensive, as they seldom survive one or at most two operational sorties; and because they are lightly made they offer little protection for their occupants in a crash landing.

Use of gliders seems likely to be a thing of the past, therefore, and the assault aircraft of the future will almost certainly be a small, rugged, powered aeroplane or helicopter. Typical of the former is the U.S.A.F.'s new twin-engined Chase C-123 Avitruc, which can carry sixty troops or ten tons of equipment, has big doors and a low floor to facilitate loading, and is sturdy enough to land and take off in small, rough, unprepared fields. Helicopters seem most satisfactory for assault from the sea and U.S. Marines have already carried out simulated beach-head landings, using Piasecki helicopters instead of conventional naval landing craft. They believe that this method of attack will result in greater surprise and far lower casualties than the old way. In addition, the carriers from which the helicopters are flown can be scattered and remain well out to sea, so minimizing risk of disaster from atomic bomb counter-attack.

In fact, it seems certain that helicopters would have many other roles to play in an attack by an airborne army, because they can land and take off safely and quickly in tiny clearings into which even a glider or assault transport could not operate. Already in Korea small helicopters have been used to carry whole companies of troops in four hours up mountains that would have taken days to climb, and have at the same time laid telephone cables to link the troops' new positions with their headquarters. Now Piasecki are developing their big XH-16 helicopter, which will be big enough to carry forty troops, guns or light tanks over any natural or man-made barrier such as mountains, rivers or minefields. And, of course, helicopters have proved themselves worth their weight in gold for casualty evacuation, reducing the death rate for badly wounded soldiers to a fraction of what it used to be.

WOULD IT WORK?

There are many other aspects to this business of creating a completely airborne army. Obviously, it would suffer disastrous casualties if flown into an area where we had not secured local air superiority—but so would troops in lorries or boats, and as we have the world's finest fighters and bombers it is our fault if we have not enough of them to clear a path for the transports. Then, again, some people will doubt that sufficient troops could be flown in quickly enough to win a major battle. The same people doubted that a city the size of West Berlin could be kept alive and at work for over a year solely by air supply, because they overlooked the fact that air transports, properly controlled, can fly in and out of a "target area" half a dozen times in the time it takes a train or lorry to go there once. The U.S. Army have calculated that a pool of 6,000 Packets could provide full transport and supply support for ten or twelve army divisions. At peak war-time production this figure would certainly not be impossible of attainment.

The Second World War and the Berlin air lift gave only the merest hint of what air transport can achieve if used properly. Now, with revolutionary new aircraft available to carry all the impedimenta of modern warfare quickly and surely to anywhere on earth, the concept of an air army need no longer be a dream or an experiment. It can be a reality—a means of safeguarding peace or of winning wars. It is the only logical army for Britain.

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[Air Ministry photo

TYPICAL ROYAL AUXILIARY AIR FORCE PERSONNEL

Four pilots of 501 County of Gloucester Squadron at "readiness" take it easy on the grass alongside one of their aircraft

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ADMINISTRATION OF THE AUXILIARY FORCES

By Air Commodore R. H. S. Spaight, C.B.E.

THERE are some soldiers who have a reasonable understanding of the administrative background of the Territorial Army, but it is unusual to find a Royal Air Force officer who has even a passing acquaintance with the administration of the Royal Auxiliary Air Force. This is perhaps not very remarkable when it is remembered that little, if any, instruction is ever given on the subject, and that attention is inadequately focused on it. While these reasons for the lack of understanding are quickly apparent, it is nevertheless wholly inexplicable that there should not be some demand from senior professional airmen for some knowledge of an essential operational element which contributes to the air defence organization twenty fighter squadrons, and twenty-seven units for the manning of the control and reporting organization.

It is all too easy to dismiss the problem by saying that after mobilization an R.Aux.A.F. unit will become exactly the same as any comparable R.A.F. unit. It is the build-up and training of units in peace time which will determine whether they will be competent fighting organizations in war. By virtue of its work the whole of the R.Aux.A.F. goes into battle from the moment war breaks out, and in fact may be engaged before many parts of the Regular Service. Any responsible Air Force commander should know something of the forging of the weapon which he will have to use.

The conception of the Territorial and Auxiliary Forces dates back to the year 1907, when the Territorial and Reserve Forces Act was passed. This was applied by Order in Council in 1924 to the (then) Auxiliary Air Force which had been authorized under Section Six of the Air Force (Constitution) Act, 1917.

The rules for raising and maintaining the R.Aux.A.F. have always been the same as those for the elder partner, the Territorial Army. Therefore the responsibility for parenting its units has rested with the Territorial and Auxiliary Forces Associations, who are the agents of the Service Departments for raising and maintaining the Auxiliary Forces in peace time. There are T. and A.F. Associations for all the larger counties and some of the more heavily populated towns in the country. In the words of the Order in Council an Association is required:

"To make itself acquainted with and conform to the plan of the Air Council for the organization of the Auxiliary Air Force within the area and to ascertain the Air Force resources and capabilities of the area and to render advice and assistance to the Air Council and to such officers as the Air Council may direct and an Association shall exercise, and discharge, such powers and duties connected with the organization and administration of His Majesty's Air Forces as may for the time being be transferred or assigned to it by order of His Majesty signified under the hand of a Secretary of State or, subject thereto, by regulations under this Act, but an Association shall not have any power of command or training over any part of His Majesty's Air Forces."

This results in there being two chains of command for R.Aux.A.F. units. For command, training and certain aspects of administration—mainly technical—they conform to the normal Air Force pattern, but for domestic administration and matters connected with their town headquarters they come to the T. & A.F.A. In addition to two chains of command, an R.Aux.A.F. unit has two homes: a town headquarters where evening training and social activities take

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[Air Ministry photo

IMPORTANT MEMBERS OF THE R.AUX.A.F. SQUADRON

Fitters II E carry out a weekly inspection on one of the Derwent V jet engines of a Meteor VII aircraft

place, and an airfield or operational station where week-end and longer training is done.

The objection to an Association, which is essentially a civilian body, having any power of command goes back to Cromwellian times and is the outcome of the constitutional dislike of private armies. At the same time, the Auxiliary personnel are volunteers who give part-time service and, though whilst on duty they are subject to the Air Force Act, are not bound in peace time by King's Regulations for the R.A.F. They have distinct regulations of their own which in some instances make certain sections of K.R. applicable and are contained in another Air Ministry publication, A.P.968.

The President of a T. & A.F. Association is always the Lord-Lieutenant of the County. The Association consists of:

(i) *Military Members*, who are the commanding officers of local T.A. units and a number of persons who were former members of His Majesty's Military Forces and who are appointed on the recommendation of the G.O.C.-in-C.

(ii) *Air Force Members*, who are the commanding officers of each R.Aux.A.F. unit and each R.A.F.V.R. squadron or centre in the county, together with a number of persons, former members of His Majesty's Forces, who are appointed on the recommendation of the A.O.C.

(iii) *Pre-Service Members*, who are representatives of the Sea Cadet Corps, Army Cadet Force, Air Training Corps and Combined Cadet Force.

(iv) *Representative Members*, who are representatives of the county, borough, urban and rural district councils, the universities, the education authority, and of employers and employees.

(v) *Co-opted Members*, who are appointed by the Associations from persons outside the foregoing categories whose service would be of benefit because of their local status and knowledge.

The Chairman and Vice-Chairman are elected annually by the Association from their membership. It is usual for one of the posts to be held by an airman.

The prevalent idea in the Air Force that Associations consist of a gathering

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of gouty colonels has no more foundation in fact than any other of the popular misconceptions about the Auxiliary Forces. It has possibly grown up from the fondness of official lists for publishing Territorial Army or temporary war rank before the names of members. There is, however, a rule to prevent civilian domination of the Association which is to the effect that the total number of military and Air Force members must be at least one-half of the total membership. Moreover, it is perhaps not generally known that there is a fixed retiring age, which, in the case of Chairmen and Vice-Chairmen of Associations, is 65.

The personnel of R.Aux.A.F. units are primarily civilian, because over nine-tenths of their life is occupied with their normal civilian way of life. It is most important for the Regular Service to recognize this. It means that anyone who has to deal with this type of unit has not only to learn another set of regulations but also to readjust his ideas of command and revise his outlook towards the personnel with whom he comes in contact.

In addition, the professional airman has to become accustomed to dealing with the Association, which is essentially a civilian body and is answerable to the Secretary of State for Air, but not to R.A.F. commanders. In other words, the power to give orders to an Association rests solely with the Air Ministry and does not devolve on any Commander-in-Chief.

The senior executive officer of an Association is the Secretary. Through a paid staff he administers all the Territorial and Auxiliary Forces within his area, which is usually on a county basis. Some large counties are divided into several areas, such as Yorkshire, which has the North Riding, East Riding and West Riding Associations. Small ones combine with a neighbour, such as Rutland, which is joined up with Leicester. Throughout the British Isles there are eighty-nine Associations, but in some instances they are grouped from a secretariat point of view and there are in fact only sixty-eight Secretaries. For instance, the same Secretary serves six Associations in the North of Scotland.

Secretaries may be, and indeed have been, found from most walks of life, but

[*Air Ministry photo*

SIGNALS PERSONNEL

C.H. Tube radar operators in action at a Royal Auxiliary Air Force Signals Group Station

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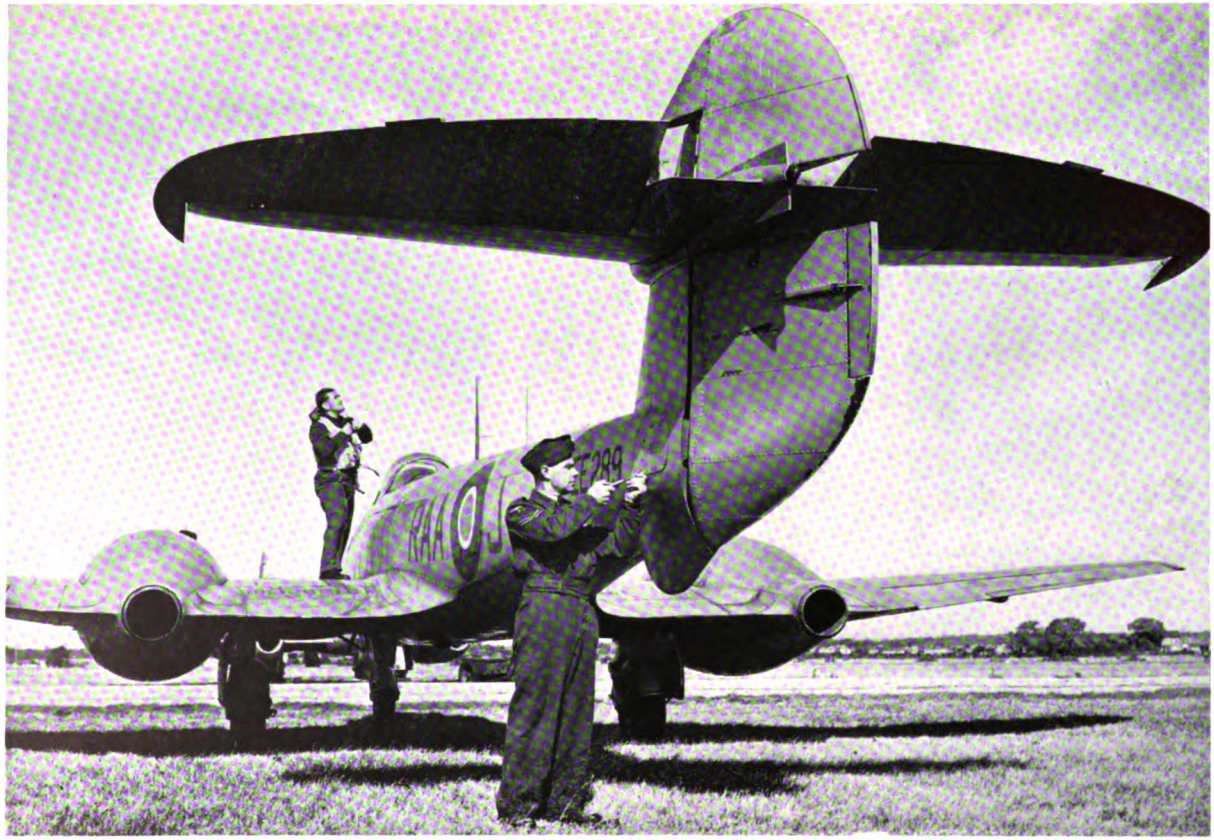

[Air Ministry photo

TEAM WORK

A corporal rigger of 500 Squadron replaces an inspection panel on a Meteor III, now ready for take-off by a pilot of this Royal Auxiliary Air Force Squadron

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by far the main source is the retired Regular officer. Rather naturally there are as yet no retired R.A.F. officers as full Secretaries, though there are about half a dozen Assistant Secretaries (Air), because of the greater number of officers in the Army who have experience of dealing with the Auxiliary Forces. The increased importance of the Air in the defence of this country makes it very desirable that there should be some amongst the Corps of Secretaries who have a specialized knowledge. Unfortunately the lack of interest in, and familiarity with, the Auxiliary Forces on the part of most R.A.F. officers makes their suitability for such posts very questionable at the present time.

It is fundamental to the system that local efficiency should depend on the Secretaries of Associations. They are the continuity men. To have the requisite knowledge and experience they must be between 40 and 50 when they take up their posts, and retire (with the possibility of a few yearly extensions) at the age of 60. Naturally much must rest in their hands, for the members of the Association are busy men and can only be expected to lay down general principles, leaving the day-to-day work in the hands of the Secretary. He must always be fully conversant with War Office and Air Ministry policy regarding the Auxiliary Forces and must be prepared at all times to advise the Chairman and members of an Association on all the multitudinous aspects of the Auxiliary Forces' problems.

The duties connected with the R.Aux.A.F. which may be assigned to Associations under the Territorial and Reserve Forces Act, 1907, as modified, include:

(i) The organization of units, their administration and maintenance except when they are called out for training or Air Force service.
(ii) Recruiting both in peace and war and defining the limits of recruiting areas.
(iii) The provision and maintenance of rifle ranges, buildings, magazines, sites of camps, aerodromes, landing grounds and hangars.
(iv) Facilitating the provision of areas used for manœuvres.
(v) Arranging with employers of labour as to holidays for training and ascertaining the times of training best suited to the circumstances of civil life.
(vi) The co-ordination of requirements with Cadet units.
(vii) Provision of mechanical transport for peace requirements.
(viii) Provision of accommodation for the safe custody of arms and equipment.
(ix) The payment of separation and other allowances to the families of men when they have been called out for service.

In fact, the R.A.F. has not by any means delegated to Associations all the responsibilities which could be placed upon them. This is at first sight rather strange when it is realized that if the existing machinery is not used some alternative means must be set up in its place. But it is perhaps typical of the inherent distrust of the airman for any organization which appears to be closely connected with the older Services. Nevertheless, it is regrettable that time, men and money voted for operational efficiency should be misemployed to duplicate work being done by a comparatively inexpensive civilian organization. As the sergeant-major says, ignorance is no excuse.

The money which Associations require to undertake the work delegated to them by the Air Ministry is included each year in the Air Estimates (Vote 2D). Before the beginning of every financial year each Association submits its budget and grants are made to it on the basis of that budget. The main headings are

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general administration, maintenance of buildings and upkeep of clothing. Other services which may be performed by Associations from time to time can be done on a basis of refund for actual expenditure.

As compared with the Territorial Army, the amount of money voted for the R.Aux.A.F. is small and at present only thirty-six Associations are involved. This is natural not only on account of the greater establishment but because of the fact that National Service men are posted to T.A. units on completion of their Regular service, there to complete their reserve training commitment. This has resulted in the majority of units being brought quickly up to establishment, and, rather remarkably, to a great increase in the volunteer elements because of the surprisingly large numbers who exchange their National Service reserve for the greater Territorial Army commitment.

It has not yet been considered advisable or feasible to apply a similar system to the Class "H" reservist of the R.A.F.

Although the greater numbers coming into the T.A. have thrown a great deal of work on Associations, it is not proportionally heavier than that created by the R.Aux.A.F. The three months' call-up of the R.Aux.A.F. fighter squadrons has occasioned a number of administrative problems. These are being overcome and to some extent they have brought the Associations and the R.A.F. into closer touch with each other and, perhaps, given the Service a truer insight into the work which Associations can do. One of their major tasks is to relieve the operational commands of all the extraneous administrative detail connected with the Auxiliary Forces, which is essential in peace time but which disappears completely in time of war.

Of course, by virtue of its functional organization the R.A.F. presents a more difficult problem than does the Army. With the Army command, training and administration are based on the geographical area. Naturally the area is of cardinal importance when dealing with Auxiliary Forces. It is impossible to raise units in areas where there is insufficient population. Thus the location of units is dependent on recruiting potential rather than on operational requirements. Once R.Aux.A.F. units have passed through their initial formulative period and have been transferred to an operational command, they may be in most inconvenient positions as far as the normal administrative structure of the command is concerned. R.Aux.A.F. units may be in a number of R.A.F. functional commands and yet their basic administration must be on a common footing. This is achieved through Associations who apply the Air Ministry instructions throughout the whole of the R.Aux.A.F. As regards higher policy, Associations are federated into the Council of Territorial and Auxiliary Forces Associations which consists of the Presidents, Chairmen, Vice-Chairmen and Secretaries of Associations sitting in council and has a small permanent secretariat. This Council is the medium for making representations to the Service Ministries at a high level and is also in a position to advise the Ministries on any matters connected with the Auxiliary Forces.

There is therefore a complete channel for civilian administration paralleling the Service chain of command from the small air committee of the Association at unit C.O. level to the Chairman of the Council at Ministerial level. Provided that this system of administration is perfectly understood, it works in perfect harmony. Troubles only arise when from imperfect knowledge matters are pushed across, instead of with, the stream or are fed into the wrong channel.

As with most things in life, there is an approved and tested method. Why not try understanding it so as to make the best use of it?

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THE ROYAL AIR FORCE REGIMENT

By Air Vice-Marshal S. C. Strafford, C.B., C.B.E., D.F.C.
(*Commandant-General, Royal Air Force Regiment*)

THE EVOLUTION OF ROYAL AIR FORCE GROUND-DEFENCE POLICY

THE policy and organization for the active ground defence of Royal Air Force installations has evolved gradually from war experience and from peace-time analysis of essential requirements, including the economical and effective use of national man power.

In the conditions of the 1914-18 war the problem was not a serious one. Between the wars it began to be appreciated during small operations in mobile conditions in overseas theatres, but little special training was devoted to it. In the absence of a clear-cut definition of inter-Service policy, the Royal Air Force tended to regard ground defence as an Army responsibility.

We thus entered the Second World War ill prepared for the ground defence of our air installations. Events following the invasion of the Low Countries soon stressed the urgent need to make up for lost time. A Directorate of Ground Defence was established at the Air Ministry in 1940 while the British Expeditionary Force and the Advanced Air Striking Force were being evacuated from France. As a first task an improvised force of R.A.F. personnel was organized for ground-defence duties, and officers were lent by the Army to make up the numbers required for duty with this force and as local defence advisers at R.A.F. installations. The Army also provided for the defence of air installations, "Young Soldier" battalions and other troops that, in the face of the threat of invasion, it could spare only with great difficulty. These improvisations were, however, far from satisfactory. For example, in his despatch covering the critical period up to 31st December, 1941, the Commander-in-Chief, Fighter Command, said: ". . . despite much hard work on all levels, many stations in my Command were far from being impregnable during those months of 1941 when enemy landings by sea or air were at least a possibility."

The need for an effective policy having become increasingly apparent, the Chiefs of Staff in May, 1941, set up a strong representative committee, under the chairmanship of Sir Findlater Stewart, to examine the problem. Its recommendations, which are the genesis of our present policy, were approved by the Defence Committee in December of that year. It was decided that the R.A.F. must be responsible for the local defence of its bases, and that an "airfield defence corps" should be formed as part of the R.A.F.

In January, 1942, His Majesty The King authorized formation of this corps and approved that it should be styled "The Royal Air Force Regiment."

In a special personal message to the Royal Air Force in March, 1942, the Chief of the Air Staff emphasized the importance of the new policy and referred to the R.A.F.'s task of defending its own air bases as "one of the most important jobs of the whole war." He concluded: ". . . I want you to take this training in ground defence just as seriously as you take the rest of your work. I want you to tackle it with the same enthusiasm and efficiency by which you have already made the Royal Air Force the finest air force in the world."

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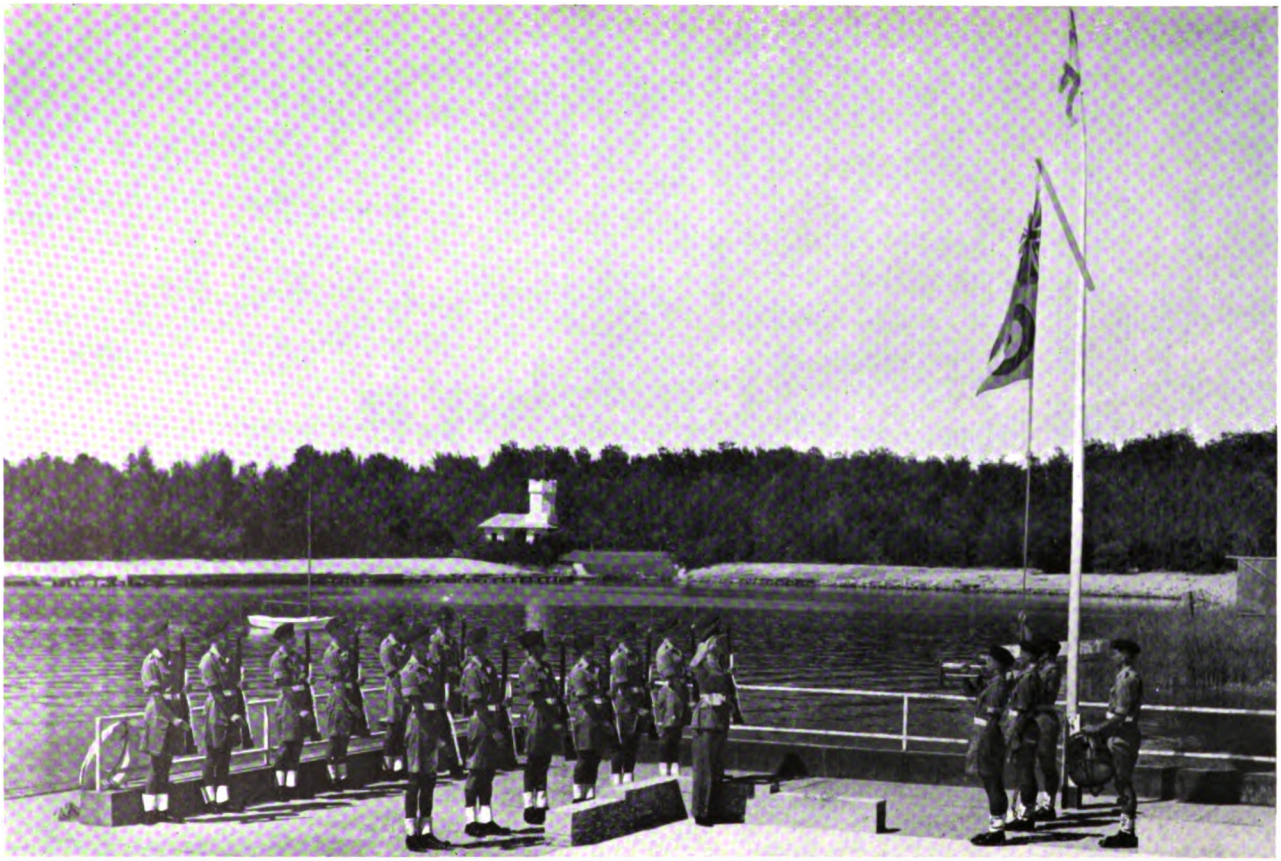

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A detachment of a rifle squadron of the R.A.F. Regiment beating "Retreat" at the Commander-in-Chief's residence at Ismailia

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ing years of the war and during its aftermath. In 1945 the Air Ministry appointed a committee, under the chairmanship of Air Chief Marshal Sir Arthur Barratt, to review the policy and the organization for ground defence in the light of war experience. The recommendations of this fully representative committee reaffirmed the soundness of the policy and organization and emphasized its importance in view of the increased possibility and scale of attack in a future war.

INTER-SERVICE POLICY FOR GROUND-TO-GROUND AND ANTI-AIRCRAFT DEFENCE

The policy is briefly as follows. Responsibility for the ground-to-ground defence of R.A.F. airfields, stations and ancillary units is shared between the Army and the R.A.F. The Army is responsible for the general ground defence of territory in which R.A.F. installations are located, and for support for R.A.F. installations which are attacked by superior enemy forces. The R.A.F. is responsible for the local ground defence of its installations.

The R.A.F. meets this commitment by training and equipping for this purpose all combatant personnel at its installations and by supporting them, at the most vulnerable stations, by operational units of the R.A.F. Regiment.

For ground-to-air defence the Army is responsible for the heavy, medium and light anti-aircraft defence of R.A.F. airfields, stations and ancillary units.

THE ROYAL AIR FORCE REGIMENT

The fifth anniversary of the formation of the R.A.F. Regiment, and its vital function and assured future in the Royal Air Force, were graciously recognized in 1947 when His Majesty The King assumed the position of Air Commodore-in-Chief of the Royal Air Force Regiment.

As regards its commitments and role, the Regiment is charged with providing:

(*a*) Operational units to undertake ground-defence tasks for which the highest standards of proficiency in ground combat are essential.
(*b*) Officers for active ground-defence and passive-defence staff duties at the Air Ministry and at the headquarters of commands, groups and analogous formations.
(*c*) The R.A.F. Regiment element in ground fighting forces raised locally in overseas territories.
(*d*) The regular staff of units of the Royal Auxiliary Air Force Regiment.
(*e*) Instructors for ground defence and passive defence as required throughout the R.A.F.

The role of operational units of the Regiment and of its associated local forces overseas include the provision of:

(*a*) Reconnaissance or observation screens under cover of which station personnel may continue normal work until the last possible moment.
(*b*) Fighting patrols and standing patrols.
(*c*) Reserves for support and counter-attack.
(*d*) Forces to undertake major or complete ground-defence responsibilities for small technical or other lightly manned R.A.F. installations.
(*e*) Light anti-aircraft defence at certain overseas installations where Army L.A.A. artillery is not allotted.
(*f*) Escorts (as opposed to conducting parties) for personnel or stores in transit.

In territories under air control the R.A.F. Regiment and its associated local forces may be employed for independent expeditionary tasks.

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A squadron commander of the Aden Protectorate Levies giving orders

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ORGANIZATION

To meet these requirements the organization of the R.A.F. Regiment is designed for maximum operational flexibility combined with economy. The basic operational unit is the squadron. Squadrons are established for specific functional purposes as, for example, rifle (infantry type), armoured car, and L.A.A. Squadrons are organized in flights which may be detached as required.

To provide the tactical balance of forces necessary at any particular location, squadrons or flights of the required functional types are allotted, and their activities are co-ordinated by a Regiment Wing Headquarters.

Administrative economy results from the Royal Air Force Regiment units being so designed that they can depend to a large extent upon the administrative services of the Royal Air Force formation on which they are based, but can nevertheless operate independently in the field for limited periods.

Regiment wings and squadrons are allotted to commands by the Air Ministry. They may be reallotted as necessary to suit changing conditions, and are therefore never integrated permanently in the organization of the formation at which they are for the time being based.

For ground-defence purposes, command of all Royal Air Force units, including those of the Regiment, follows the normal R.A.F. chain of command.

The Commandant-General of the Royal Air Force Regiment—who is also Inspector of Ground Combat Training—is responsible, at Air Ministry level, for the efficiency and readiness for war of the Regiment and for the implementation of Air Ministry policy in regard to ground defence in the Royal Air Force. In these capacities he reports direct to the Deputy Chief of the Air Staff and exercises supervision and control of the Directorate of Ground Defence.

The central training establishment of the Regiment, and its spiritual home, is the R.A.F. Regiment Depot at Catterick in Yorkshire. Gunners receive their basic training at No. 1 Basic Training School, Dumfries. Officers, N.C.Os. and gunners who are required to serve in L.A.A. units go through the L.A.A. Gunnery School at Watchet in Somerset. All officers and N.C.Os. return to the Depot, as necessary, for courses of instruction in order to maintain the high standard of efficiency required and to keep up to date on development in tactics and weapon training.

The personnel allotted to the Regiment include a proportion of National Service officers and airmen who are making a first-class contribution and obviously enjoy regimental life and activities.

OVERSEAS FORCES ASSOCIATED WITH THE ROYAL AIR FORCE REGIMENT

In the Royal Air Force the now colloquial term "regiment" embraces the whole family of specialist ground fighting forces which serve the Royal Air Force in this way. The locally recruited forces associated with the Royal Air Force Regiment, and in which R.A.F. Regiment officers, warrant officers and N.C.Os. have the honour to serve, include the R.A.F. Levies (Iraq), the Aden Protectorate Levies and the R.A.F. Regiment (Malaya).

The oldest of these forces is the R.A.F. Levies (Iraq), which can trace its unbroken history back to 1915, when it originated as a bodyguard for political officers in Central and Southern Iraq. After various changes in status and organization the "Iraq Levies," as they became known in 1919, took shape as a conventional military force under the control of the War Office. In 1928 control

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Men of a R.A.F. Regiment Rifle Squadron in 2nd T.A.F. practising a river crossing on improvised and rapidly constructed rafts

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passed to the Air Ministry and the Levies were placed under the command of the Air Officer Commanding, Royal Air Force in Iraq.

Their present title was adopted in early 1943, which is thus the date their direct association with the Royal Air Force Regiment started. Regiment personnel thereafter gradually replaced seconded Army personnel in the British complement of the force. The force served with distinction, both inside and outside Iraq, during the last war.

The Aden Protectorate Levies also have a long and interesting history, having been formed in 1928, when it was decided that the Royal Air Force should relieve the Army of the responsibility for the defence of Aden, and that a force of Levies should be provided to support Royal Air Force control operations and for the defence of the air bases. The Regiment started to supply the complement of British personnel in 1943. Units of the A.P.L. are almost continuously on active field service in the rugged terrain of the hinterland of the Protectorate.

The Royal Air Force (Malaya) was formed in April, 1947. It is recruited from the Federation of Malaya, and its British complement of officers and N.C.Os. has been drawn from the R.A.F. Regiment from the outset. Although the youngest of the Regiment's associated forces, it has quickly proved its worth both on its normal regimental duties at the main airfields in Singapore and Hong Kong and on anti-bandit operations in the Malayan peninsula.

The R.A.F. Levies (Iraq), the Aden Protectorate Levies and the R.A.F. Regiment (Malaya) each have their own voluntary bands and take great pride in the turn-out of their guards of honour on ceremonial occasions. They have also repeatedly demonstrated their fighting qualities and tactical ability on active operations. This is reflected in the honours and awards notified in the *London Gazette*, which show a total of one M.B.E. and fourteen mentions in despatches in 1950, and one O.B.E., one M.B.E., one B.E.M., two Military Medals and six mentions in 1951.

ROYAL AUXILIARY AIR FORCE REGIMENT

The Royal Auxiliary Air Force squadrons are located at centres in England, Scotland and Northern Ireland, alongside Royal Air Force Auxiliary fighter squadrons, in some cases on the same airfields and sharing the same town headquarters. All Auxiliary Regiment squadrons are at the present trained and equipped for light anti-aircraft duties. Like other auxiliary forces, they attend for training in the evenings and at week-ends, and also for a two-week summer camp. Their summer camp period is normally spent at the L.A.A. Gunnery School at Watchet, where facilities exist for live firing practice, and where the permanent instructor staff of the L.A.A. School are available to assist in practical training. By being formed on a regional basis these squadrons have a strong local as well as squadron *esprit de corps*, which enhances competitive spirit in annual competitions, such as the Lloyd Cup Trophy, awarded for annual training results.

The personal keenness and enthusiasm of the members of these squadrons, who are all volunteers, are most marked and their squadrons will be ready to make a valuable contribution as first-line reinforcements in an emergency.

ACTIVITIES AND OPPORTUNITIES

The various commitments of the Regiment provide a variety of opportunities for valuable and interesting service, either with an operational unit or in a staff or instructor post at home or overseas. A tour of duty with the Regiment's overseas local forces offers special scope and the additional interest of studying the

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language and customs of the fine types of local personnel in those forces. Training and working with these men also offer rewarding and inspiring opportunities for developing the essential qualities of leadership.

During a career in the R.A.F. Regiment, participation in major exercises and in demonstrations and competitions adds zest to normal training. As an essentially combatant force, a large proportion of regimental training and duties is in the open air and requires a high standard of physical fitness and physical and mental alertness. Regiment personnel should therefore, and do, give a good account of themselves in organized games and athletics. Overseas service provides additional opportunities for field sports, such as game shooting, riding, polo, hunting and sailing, outside the range of opportunities normally available in the United Kingdom.

With local forces overseas there is the stimulating challenge to an officer's endurance and physical fitness in setting or keeping pace with his men, who are in their element on field exercises in the foothills, sand-dunes or jungle of their local terrain.

HISTORY AND TRADITION

The official history of the Royal Air Force Regiment has recently been completed, but has not yet been published. Although the Regiment will not attain its tenth birthday until 1st February, 1952, this full history is already a bulky document. A large proportion of it deals with the part the Regiment played during the war years on active operations in overseas theatres—in Europe, North Africa, the Middle East and in South-East Asia. Operational experience in all these theatres has its lesson of vital importance to training and preparation for a possible future emergency. Study of these lessons, particularly by the young entry, will provide a realistic background to the understanding of the essential part that ground defence plays in the effective operation of an air force.

Although the history book is not yet available, many illustrations of the importance of the Regiment's role with the Royal Air Force, and of its contribution to joint land/air operations could be quoted from the despatches of commanders-in-chief which have been published during and since the war. For example, the Allied Air Commander-in-Chief, South-East Asia, stated:

> "I have it on record from one of my Group Commanders who moved with Fourteenth Army all the way through Burma, that he considered it probable that the Group could not have occupied air strips as far forward as they did—with consequently better air support for the Army—had he not been confident that the R.A.F. Regiment could have maintained the necessary security."

He adds later:

> "If the R.A.F. Regiment in South-East Asia had done nothing more than provide vital protection for our airfields, the record of its achievements would still read with commendable credit. That it was able to perform further additional services and maintain a smartness and discipline which called forth praise from Army and Navy alike, demonstrates the value of the Regiment as an adjunct to the Royal Air Force. In my many tours and inspections throughout this Theatre I have noticed the almost 'jealous-like' pride which the Regiment Squadrons have in their own Service."

In all R.A.F. commands today the close association and co-operation of flying and Regiment units on the same stations is maintaining a closely knit air/ground fighting team ready to meet any emergency.

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A NEW ARM IN LAND WARFARE?

By "Bo'sun"

From *The Times* of 2nd November, 1951:

> ". . . 33 United States Marines, all volunteers, raided a North Korean stronghold on Saturday. They were carried over the mountains in two helicopters, *the first operation of its kind in war.*" (The italics are my own.)

MANY tactical innovations, which have subsequently revolutionized land warfare, made their debut on just as small a scale as this. It is equally true, of course, that two swallows do not make a summer. Is this enterprise of that undoubtedly enterprising corps, the U.S. Marines, to be regarded merely as a freakish exploit in an unusual kind of war, or does it suggest important tactical possibilities for any nation which may have the foresight to develop this embryo method of attack?

In a previous article* I discussed the alleged vulnerability of helicopters to (*a*) air attack and (*b*) fire from the ground, and endeavoured to show that their danger from air attack need not necessarily be anything like as great as many people imagine. I based my belief mainly on the fact that large numbers of very small aircraft, flying extremely low (tree-top height) would be a difficult target for modern fighters and for the radar on which modern fighters depend. I suggested, therefore, that considerable scope might exist for a bold use of helicopters for various operations of war which did not involve flight over strongly held enemy positions.

Korea is not perhaps a fair test of the invulnerability of helicopters to air attack because the enemy air does not seem to have been very efficiently handled. But a hostile fighter force of some strength undoubtedly exists there. In spite of its existence, helicopters have been extensively used for evacuation of wounded from the most forward areas as well as for other duties involving a close approach to enemy territory without actually crossing it. Korea has proved the helicopter's claim to be considered just as much a vehicle of the forward areas as a jeep or a bren-carrier.

As a vehicle the helicopter possesses characteristics which place it easily first among all vehicles known today in respect of cross-country mobility coupled with speed and "handiness." In speed it far surpasses every other vehicle except the orthodox aeroplane. Its inferiority to the aeroplane as regards speed is more than made good by its immeasurable superiority over the aeroplane in what may be termed "handiness." It is this "unhandiness" of the aeroplane—namely, its dependence upon enormous elaborately prepared runways and its subservience to a highly centralized radar control system—which renders it a very unsatisfactory vehicle for the tactical movement of troops. The helicopter suffers from none of these cramping inhibitions. It requires no prepared ground for its take-off or landing. Its ability to fly at "one mile an hour" if necessary renders it capable of operating at very low altitudes in conditions of visibility which would prevent low

* "Vulnerability of Helicopters." (*Fighting Forces*, January, 1950.)

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flying by ordinary high-speed aircraft. It can, in fact, "feel" its way at low altitude across country, provided that the pilot can see a hundred yards or so ahead, just as easily as a car can "feel" its way along a strange road in a fog.

Leaving aside for a moment the question of vulnerability to air attack, most soldiers will fully appreciate the potential value of vehicles which could carry a raiding force rapidly to a considerable depth behind the enemy lines. A helicopter-borne force could take full advantage of gaps in the enemy lines, e.g., mountainous regions unoccupied by the enemy or only very weakly patrolled. In modern war the opposing armies rarely form unbroken lines of several hundred miles, as was the fashion of 1914-18. As a rule there will always be gaps, particularly in theatres of war where roads are scarce. Helicopter forces will easily find those gaps and easily slip through them.

The value of a new tactical conception depends upon its value in terms of mobility and hitting power. It was the mobility of the caterpillar vehicle combined with its power to carry armour and powerful weapons which created the tank. The mobility of the helicopter would not in itself be sufficient to create a tactical revolution. It must be capable of carrying sufficient fighting power to strike decisive blows behind the enemy lines.

Fortunately, concurrently with the development of helicopters, there has been a great development in the hitting power of easily transportable weapons. Non-recoil guns, light enough to be handled in close combat by the infantryman, can now fire projectiles which will destroy a heavy tank. Other non-recoil weapons can deliver a rate and weight of fire to ranges of several thousand yards, which same fire-power would have necessitated the deployment of much field or medium artillery not many years ago.

Exploitation of the rocket principle and improvements in mortar design have now made it possible for an attacking force, without being encumbered with a mass of road-bound transport and guns, to overwhelm enemy defences by means of an annihilating bombardment from short ranges. Thanks to non-recoil, rockets, "spigot" ammunition, hollow-charge ammunition, incendiary ammunition, and many other recent developments, it is even now quite possible to transport by helicopter a force endowed with sufficient short-range fire-power to smash its way through any defences which are not sited in great depth. This means that all kinds of vitally important installations behind the lines, e.g., airfields, headquarters, supply depots—will be vulnerable to raids by helicopter forces, no matter how strongly these important places may be ringed by perimeter defences.

There remains the question of vulnerability to fighter interception. It would be out of the question to arm helicopters adequately to put up a fight against the multi-gunned fighter, or even to armour them against such attack. But it should be quite a simple problem of design to equip these helicopters with a means of producing their own "artificial fog." Smoke-producing gear need not be of prohibitive weight nor does it involve complications of "firing through the rotor."

I will not repeat at length the arguments (set out in my earlier article) for believing that large numbers of small helicopters, flying always at "nought feet" and never bunching when on the ground, would prove an insoluble problem to a hostile fighter force. They would offer a less favourable target than the same number of lorries moving along a road. Let us now consider the tactical possibilities of a small land force—a "helicopter battalion"—relying on helicopters as its sole form of transport.

Role of the force.—Attack and destruction of enemy installations (air bases, headquarters, depots, etc.) in the enemy l. of c. areas.

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Transport.—About five hundred helicopters.

Tactics in the air.—Movement at tree-top heights or in limited visibility. Emission of smoke-screen to form cloud at about three hundred feet whenever threatened with immediate fighter attack.

Tactics on the ground.—Perpetual dispersion so as never to offer an air target. Camouflage and light flak to supplement dispersive air protection. Command both in the air and on the ground by liberal allotment of wireless.

Conduct of a typical attack.—Approach march will be made through gaps between enemy occupied areas. Route planned and followed by use of oblique air photographs (copies issued to all helicopter pilots). Force moves across country at "nought feet" in a rough "blob" formation, each component of the force keeping station in accordance with each component's role in the battle. Thus the helicopters, carrying assault troops (infantrymen), will travel toward the front of the "blob," while fire-power producing weapons (mortars, rockets, non-recoil guns) will be carried farther in rear—i.e., at about their effective range from the point of the "blob." Deployment for attack will thus only involve the whole force alighting, like a covey of partridges, with its "point" just outside the outer defences of the objective.

All reconnaissance for the attack will have been based on study of air photographs. Attack can therefore commence, by a crushing mortar and rocket bombardment, almost as soon as the helicopter force has alighted. The assault troops (very lightly equipped infantry) will penetrate the defences by a high-speed attack immediately on the heels of the heavy bombardment. Picked infantrymen, thus brought physically fresh to the assault, will usually overcome l. of c. defence troops who have just suffered a surprise bombardment of great intensity and weight.

After capture and destruction of the objective the force can speedily withdraw behind its own lines, again at tree-top height and probably by another route.

Fantastic as this conception may sound, there is nothing impossible in it, even today, given the requisite number of helicopters and sufficient time to train the soldiers of such a force in the use of their weapons and their transport. I say with emphasis "*their* transport." For such a force must be a closely knit fighting team. Everybody from commander down to the private soldier would have to understand thoroughly the capabilities and limitations of *all* the equipment used by the force—i.e., the close-quarter weapons of the assaulters, the fire-power weapons of the supporters, and above all the transport on which the whole force depends, the helicopters.

Such a tactical conception could never be realized while the transport side of such a force remains in the hands of the Royal Air Force. For our junior Service, which came into existence in order to develop new forms of war, untrammelled by the hidebound ideas of the older Services, has in process of time itself become rather hidebound. Its mental horizons tend to become limited to the ideas of strategic bombardment and of defence against it. Where these horizons extend to include Army co-operation, they rarely stretch beyond "air strikes" or the gaining of air superiority, with occasionally a little photographic reconnaissance thrown in. It takes air-minded soldiers to see that there could be other uses of aircraft in land war.

Whatever justification there may be for denying the Army the possession and control of its own aeroplanes, no such argument can apply to helicopters. Nobody can claim that it will make a ha'porth of difference to the air superiority situation whether our available helicopters are centralized under the Air Ministry or

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dispersed among all Services which have need of them. Navigation of helicopters need not affect air traffic regulations or radar control, for they will keep out of the air regions used by normal air traffic. They will be like lobster-pot fishermen, operating so close to the shore that passing liners do not have to worry about them. Apart from the fact that it happens to leave the ground, a helicopter has more points of resemblance to a jeep or a motor car than it has to an orthodox aeroplane. It is an entirely new type of transport, travelling in a medium hitherto hardly used (the air just clear of the ground and clear of aerodromes). To harness its future development and use to a more old-fashioned type of transport, such as the aeroplane, is to stunt the growth of a new form of transport which may revolutionize land war.

Radically new technical developments need study by open minds, unbiased by preconceived ideas. A proof of this will no doubt be found in the ridicule which will be poured upon these suggestions by the pens of Royal Air Force officers.

The views expressed in this Journal are those of the authors, and are not to be construed as official opinions or policies.

—Editor.

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MACKINDER TODAY

By Wing Commander H. D. Newman

Who rules East Europe commands the Heartland,
Who rules the Heartland commands the World Island,
Who rules the World Island commands the World.
—*Democratic Ideals and Reality, 1919.*

NO delving into the fundamentals behind the complex web of present-day international relations can be undertaken without the "Heartland" theory intruding itself. It cries out for attention and refuses to be shelved unstudied. An assessment of the significance of this penetrating piece of strategic thought in the light of modern developments thus becomes an essential element in acquiring the background knowledge necessary for the correct interpretation of world events and trends.

THE THEORY STATED

Before a meeting of the Royal Geographical Society in 1904 an eminent British geographer, Halford Mackinder, read a paper in which he made one of the first attempts to show how historical development had been guided by facts of geography. History to Mackinder was geography in motion. He argued that the history of Europe was subordinate to that of Asia in that modern Europe is a product of reaction and resistance forged by the poundings of an Asiatic hammer —raids by nomadic tribes issuing from the inner steppes through the Urals Caspian gap—against an anvil formed by the seaborne raiding of the Vikings. This, and not the lateral infiltration of Roman and Greek culture, he gave as the main cohesive force. It reached its peak with the Mongol invasion of the thirteenth century, but in retrospect was stimulating rather than overwhelming. The base from which the raids set out was the central land mass of Euro-Asia, an area of some twenty-one million square miles—almost half of the land mass of the globe—wholly inaccessible from the sea but because of its steppe nature offering little obstacle to internal movement by land. It comprises essentially of Asiatic Russia, Sinkiang, Mongolia and the non-coastal regions of the Middle East. To this area, bounded mostly by polar ice, desert, mountain and high plateau, open only to the west, Mackinder gave the name "Heartland" and went on to show how before the days of sea mobility the power controlling it had the strategic advantage, until the development of sea power and a growing seaborne commerce operating from bases in the fringe so whittled away this advantage that Europe was enabled to contain Euro-Asia and remove the threat of land power to her existence. He then pointed to the slow return swing of the pendulum arising from Russian expansion to the east and the development of the trans-continental railway. These factors presaged to him an economic development within the heartland not only comparable with that of any other region but safe from the competition of ocean commerce. They led him to ask:

> "Is not the pivot region of world politics that vast area of Euro-Asia which is inaccessible to ships but in antiquity lay open to horse-riding nomads and is today about to be covered with railways?"[1]

and suggest that if the balance of power ever favoured this pivot State and its vast continental resources were available for the building of a fleet, then an empire of the world would be in sight. This he considered could happen if Germany were to ally herself with Russia, but concluded that a danger of

[1] *The Geographical Pivot of History*—Proceedings of the Royal Geographical Society, 1904.

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irresistible pressure on Europe and other countries fringing the heartland would exist whatever power was in control. As an alternative he gave a Chinese hegemony under the guidance of Japan.

In 1918 Mackinder re-examined his ideas. He concluded that the basis remained sound and in an attempt to play the statesman and influence the Peace Conference at Versailles he coined his well-known "Heartland" rune. The lines crystallize his theory, the essence of which is that world affairs are controlled by a group of powers that lie in two parts of the rim of the huge, sparsely inhabited Eurasian Heartland beyond the reach of any sea power. Any of these land powers that achieved strong control of this heartland would be in a position to conquer all the fringe powers one by one and extend its rule to the World Island—Europe, Asia and Africa—and so eventually to the whole world. A later reassessment in 1943 saw his conception remain basically intact. He did, however, split his original heartland into two: Heartland Russia to the west of the Yenisei River and a supporting area of large, natural reserves to the east which he called "Lenaland" after the River Lena running through its centre. This combination, he thought, loomed with greater power than the original heartland and turned his earlier speculation into reality. The introduction of "Lenaland" scarcely alters the dicta of his 1918 rune, and an examination of each in turn gives perhaps the best means of making an up-to-date assessment of the value of the theory as a guide to the future. As a prelude, however, it is helpful to attempt to discern his purpose in propounding the theory and then delineate the changes that have since taken place.

THE UNDERLYING PURPOSE

Mackinder was British. He belonged to an age when British sea power was the dominant factor in world strategy. But though he looked at the world from Britain and through British eyes, his knowledge and vision enabled him to grasp the little-realized fact that improvements in the mobility of land power were eating away the strategic advantages of the sea. He saw a growing danger and sought by evaluating the threat of land power mobility to that of sea power to wean his fellow countrymen away from their traditional preoccupation with the sea to a new appreciation of land values. He saw all too clearly that modern motor transport aided by the road builders can follow with relative ease the paths of primitive tribes.

THE CHANGES SINCE

To turn to the modern scene against which the theory must be tested, the first change to demand attention is the eclipse of the Mercator projection as an instrument of strategical thought. The Mercator world shows a Siberian heartland fringed by Russia, Europe, Africa, India and China to form the World Island which in turn is flanked on the left by Great Britain and the Americas and on the right by Japan, Malaysia and Australasia. However, in the heartland region the Mercator map distorts the picture as seen on a globe. The Americas do not flank the heartland. They are joined by the polar ice to the main mass of Asia. The Arctic Sea contracts and is but a slightly bigger Mediterranean. In consequence, if the strategical concept of the heartland is accepted as including all regions which can be denied to sea power, then to Euro-Asia must surely be added the Arctic ice and part of North America, particularly as the air comes to the assistance of ground in opening up previously inaccessible areas.

Aviation, in adding a third and increasingly important medium of mobility, tends to change the picture. Though it augments the internal mobility of the heartland it also destroys the barrier of the polar ocean and leaves Euro-Asia

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vulnerable from the north to air power flying over the Pole from bases in North America. Air mobility, however, cannot compete economically with mobility on land or sea except in those areas where natural obstacles forbid surface transport or raise its cost to that of the air. Surface activity in areas where it must be sustained by aerial lines of communication will, for a long time to come, be only of a minor nature. This applies particularly to the Arctic, though explorers like Stefannson and geographers like Hanson regard the lack of a settled population along the Arctic shores on which to base a large army rather than the polar ice and night as the main barrier to large-scale operations by ground forces in the area. However, for the present, it remains true that, though Mackinder's heartland is open to air attack from the north and indeed from most directions, the prospect of successful invasion which must depend on land and sea power is remote. The significant question is whether air power can inherit the role of sea power and offer nations on the fringe the possibility of still containing the heartland despite the advance of internal communications. The answer seems to lie in the relative degree of economic power.

In a modern large-scale war the ultimate result depends largely on man power, access to adequate supplies of food and raw material, industrial capacity and the relative degree of technological development. Victory inclines to the combination holding the advantage in these vital factors. Land space is important, but its value lies chiefly in the fact that time can be bought with space. It is a strategic cloak, important more to the defender than to the aggressor. The past half-century has seen arise in the Americas a combination of natural resources and industrial capacity which far outstrips the economic potential of any other region. That this advantage can be matched in the near future by a comparable development within the Heartland where severe climatic conditions require a higher expenditure of energy on the mere process of living appears unlikely. Combine the resources of the Americas with the industrial complex of Western Europe and the prospects of the heartland are further dimmed. To quote a recent pertinent report:

> "In every essential industrial activity, for example, steel, coal, power and oil production—its (U.S.S.R.) inferiority to the combined industrial power of the United States, Canada, Britain, France and the Benelux countries is still great."[2]

In addition to this seemingly poor prospect of speedy industrial expansion it is doubtful if the heartland could ever hold the man power required to maintain permanent empire. Lack of man power was the root cause of the transient nature of the control set up by the early raiding tribes. Such permanency of control as existed came from that part of the margin in which are situated the more populous lands. However, the balance of man power is shifting. The shift, at present, favours the vigorously growing nations within the U.S.S.R. It seems that biological inheritance is producing qualities in the Heartland people which compensate for climatic handicaps. On the other hand, there is evidence that reproduction rates within the U.S.S.R. are declining as the degree of urbanization increases. On balance it is doubtful if the peak population of the region will reach an adequate figure.

This outline of the changes which have taken place can be suitably rounded off by looking back on two of the potential developments which Mackinder considered would constitute a danger to the marginal sea powers but which have

[2] *Defence in the Cold War*—Report of a Study Group of the Royal Institute of International Affairs, October, 1950.

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not materialized. Germany has neither allied herself with nor successfully dominated Russia. The reverse is perhaps partially true. The German defeat in the West in 1918 and on all fronts in 1945 has seemingly put such a combination farther away. The German General Haushofer, head of the then Institute of Geopolitics and a far-seeing student of Mackinder's ideas, thought it could best be brought about by economic infiltration. In the event he was disregarded. The German effort to control the heartland was based on military action. It failed. On the other hand, Russia by slow but sure colonization and economic pressure, has brought it under her exclusive control. The defeat of Japan disposes for the foreseeable future of the other alternative of control by China under Japanese tutelage. The effect of a communist China is hard to assess and depends on the ultimate relationship of Peking to Moscow—subservient, co-equal or independent. It does, however, offer an alternative combination, particularly powerful in man power.

THE EFFECT OF THE CHANGES

Mackinder's first dictum that the ruler of Eastern Europe is the commander of the Heartland is today an axiom. The U.S.S.R. has inherited the Mongol Empire. By an eastward colonization following the railway, the icebreaker and the aeroplane, she has consolidated her power over inner Asia. She has matched this internal development by an increasing outward pressure as though in response to the second dictum. Her control over a ring of satellites on her western and southern frontiers grows stronger day by day and her influence is felt increasingly in China, Korea and South-East Asia. Road and rail development in Turkestan, Uzbek and the Pamirs area may indicate greater outward pressure to come. In Sinkiang Chinese suzerainty is more a matter of name than of fact. The truth of the second dictum is open to doubt. If industrial capacity and the availability of trained man power are now the major measure of ability to command, then a power based on the Heartland alone has poor prospects of expanding its empire. But the U.S.S.R., once she has made her hold over her satellites complete and with the heartland in her possession could from such a base set out with some confidence on a policy of world conquest. Ultimate success, however, would depend on obtaining control of the population and resources of Western Europe. Without this control her resources would be insufficient to give her command of the other marginal regions and so rule the World Island. The possibility of the U.S.S.R. dominating the West European industrial complex by purely military means appears to diminish as the slow integration of this region proceeds. The idea of a European Federation, politically and economically stable, with a single European army does not seem to have lit Mackinder's thoughts. Be that as it may, the combined resources of Europe and the Heartland are necessary to the power that would dominate the World Island, with Europe as the main centre. In other words, change has called for a concept of a Heartland larger than Mackinder's original pivot state before rule of the World Island can be certain. At first sight a Communist China allied with Russia presents an attractive alternative to Europe, but such a combination holds the advantage only in man power and by dividing it into two sections mutually hostile may well prevent the unification of the World Island, Mackinder's prerequisite for world conquest. The third and final dictum can be accepted. The area of the World Island equals two-thirds of all available land. Within this area are three-quarters of the world's population and the majority of races with the highest rate of increase. As a single political and economic

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DEFENCE THROUGH OFFENCE

By Squadron Leader C. D. North-Lewis, D.S.O., D.F.C.

THE soldier—or for that matter the sailor or airman—has often been accused of living in the past; of basing his tactics for the future on battles that have been fought; of refusing to move with the times. History has shown us a succession of victor nations being in their turn vanquished because of their failure to exploit the weapons and the tactics which brought them victory. As Professor Toynbee has shown, the inventors and beneficiaries of one innovation proceed "to rest on their oars" and allow the next innovation to be made by their enemies. "Each link had been a cycle of invention, triumph, lethargy and disaster; and, on the precedents thus set by three thousand years of military history, from Goliath's encounter with David to the piercing of the Maginot Line and a West Wall by the thrust of mechanical cataphracts and the pin-point marksmanship of archers on winged steeds we may expect fresh illustrations of our theme with monotonous consistency."

The last war showed us all four movements of this rhythm. The aeroplane was the innovation. In the hands of the German it shattered the armies of France. For France, complacent in her belief that her shield of defensive earthworks would prove impregnable, had failed to realize that these bastions were outmoded. But Germany, in her turn, flushed with her overwhelming victories, "rested on her oars." The period of inertia set in, and it was England and America who seized their opportunity. The Davids-of-the-Air slew the Goliath. Innovation, victory, inertia, defeat. Germany heard all four beats of that relentless rhythm.

We were successful because we commanded the air. Germany failed because she did not realize that she had to dominate our Air Force. Had she pursued that aim with a singleness of purpose she might well have won the Battle of Britain and, with that, victory. But our eventual command of the air opened to us the high road to victory. For us the beats have been innovation, victory. Will the next one be inertia and with it defeat? For us the danger lies not so much in failing to appreciate the cause of our victories—the necessity of first winning the air battle is now understood by everyone—but in believing that an aerial Maginot Line can protect this country. We won the Battle of Britain with a defensive fighter force. If we sit back complacently believing that a defensive fighter force will repeat our success then we have indeed entered into the state of inertia which leads only to defeat.

From the moment the Allies gained the initiative they punched holes in the enemy's defensive system. The initiative is gained by offensive action. It is gained by the relentless pressure of the bomber force on the enemy's vitals. It is gained by destroying the enemy air force both in the air and on the ground. The War Manual sums up this offensive action in these words: "If the offensive action is stoutly maintained and wisely directed, the result will be that the enemy will concentrate the cream of his crews on home defence and will turn over in an ever-increasing degree to the production of defensive fighters instead of the offensive classes of aircraft. As this process develops our own territories and our armies and fleets in the land and sea theatres of war will enjoy an increasing immunity from enemy action. And, finally, the enemy will lose all control of the air over his own country and by then his early defeat is sure. This is what happened to the Germans in the Second World War, 1939-1945."

It is clear that success is achieved in the end only by offensive action; that this action must be carried out by both fighter and bomber. In the last war the

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defensive character of our basic fighter—the Spitfire—might have cost us dear. The Spitfire was defensive in character not because it was unable to carry offensive weapons but because of its limited radius of action it could not penetrate far into the enemy's territory. Fortunately this vital gap was filled by our American allies. But we are faced again with this same shortcoming. Our fighters are, without exception, purely defensive aircraft. We do not possess a modern fighter which can carry out offensive operations. One of the best ways of destroying enemy aircraft is on the ground. The fighter is the best weapon for this job. "On the ground the aeroplane is a useless, expensive, defenceless contraption; in the air a thing of beauty and surprising power." These words of Air Marshal Coningham show the soft under-belly of air power. A vast, unwieldy air arm deployed in tactical support of armies in the field is even more vulnerable. Fighter attacks against airfields can achieve results out of all proportion to the effort expended. These attacks keep the enemy constantly on the hop and allow the most daring exploitations to be made of the element of surprise. An aggressive fighter force could easily allow a David to slay a Goliath. This, of course, does not mean that there must be no defensive system. But it does mean that that system must absorb only a minimum of the total effort.

During the last war this problem was not so acute. It is true that our fighter force was restricted by its limited range; but within the confines of this limitation we were able to turn without difficulty from strictly defensive to offensive operations. Thus our fighter force retained a considerable flexibility; it could be used in both roles and the same force played a leading part in both aspects of the air war. Today this advantage of flexibility is tending to decrease because the needs of modern aircraft are forcing the designer towards specialization. The fighter is becoming a specialized interceptor effective only in the purely defensive role. This trend would not be so serious if we were, at the same time, developing an offensive fighter. But we are not. "In the early stages of any war the Royal Air Force is almost certain to find itself upon the strategic defensive. But the aim must be at the earliest possible moment to wrest the initiative from the enemy, and to this end an offensive policy is essential, even when the means are apparently inadequate." But although the War Manual clearly lays down this policy it cannot be put into effect unless the fighter force is flexible.

In another field this specialization will also have a great effect. The success of the ground forces in major operations depends upon effective support from the air force. In the past this support has been given in a large measure by fighter aircraft. It is probable that the interceptor fighter will be of little use in this role. Moreover, the advanced airfields from which a tactical air force must operate may well preclude this aircraft being used in the fight for local air superiority; that is if its limited range did not already make its effectiveness problematical.

In the past the Royal Air Force has resolutely, and rightly, refused to build a specialized aircraft for ground attack. But it now appears that any policy of relying on a purely defensive fighter may have equally disastrous results. All the evidence points to a need for a fighter which can be used offensively not only for gaining air superiority but also for supporting the ground forces. Even in the task of protecting our base we have been forced to divide our resources between specialized day and night fighters. In the future it appears that we must specialize still further. We must be capable of turning immediately from defence to offence if we are to gain the initiative. If we put our trust solely in the defensive fighter, if we rely on an aerial Maginot Line and the bomber to gain air superiority, then we can, indeed, be accused of "resting on our oars." History has clearly demonstrated the inevitable result of such a policy.

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FAMOUS AIRMEN

Air Commodore L. F. Sinclair, G.C., C.B., C.B.E., D.S.O.

BY KENNETH HARE-SCOTT

TO a generation of officers of the Royal Air Force (in another eight years we shall be able to say "to two generations") Cranwell holds a place near and dear to the heart. In the flat Lincolnshire landscape it is difficult to find what might be described as a dominating feature; but the Royal Air Force College reigns in view for many miles, a landmark and a symbol. And through the achievements of its sons the College is, today, as prominent in the regard and affection of the British peoples everywhere.

When Winston Churchill spoke those immortal words, "Never in the field of human conflict has so much been owed by so many to so few," Cranwell, more than any other single institution, could justly claim to have given life to the body that did those great deeds.

When I was in San Sebastian last summer a young Spaniard asked me how and where the "famous English aviators of the war" were trained. I did my best to tell him, and of course mentioned Cranwell. "Oh, I've heard of Cranwell—after we get some aeroplanes—we have practically none now—we must have a Cranwell," he said, "because nearly no young Spanish people today can fly." A sidelight on the fame of Cranwell beyond our shores!

All of which brings me to the subject of this instalment of "Famous Airmen" —Laurence Frank Sinclair, the present Commandant of the Royal Air Force College. He is an airman with an unusual record, combining as it has great heroism, administrative talent and a flair for getting on with our allies. On the surface his career seems to have followed the course of many of his contemporaries—service at home, service abroad, steady promotion, plenty of flying, the occasional accident, some good luck. But there is this difference: much of Sinclair's useful career has been devoted to problems relating to "personnel" and the personal side—human relationship—of his Service's association with those wearing other uniforms.

His early education began at Christ's Hospital, and then the Imperial Service College. In 1926 he became a cadet at Cranwell, but his days there were, in some measure, handicapped by a very serious motor-cycle accident early in 1927. "It smashed my face up very badly, and prevented me playing normal games for some years," he says. "When I went to India early in 1930 I found shooting and riding more to my taste." Later he was to become a keen golfer, with a handicap of seven, but since the war he has had little opportunity to play.

On receiving his commission in 1928 he spent a year at No. 4 Army Co-operation Squadron at South Farnborough before being posted to a similar squadron in India. His first experience of active service soon followed, against the tribesmen on the North-West Frontier. Many famous airmen of today, all senior officers now, added to their earlier battle experience of the 1914-18 war, or had their first battle experience, on India's turbulent frontier in the North-West. Sinclair remained in India for two years, enjoying the exhilarating life of work and sport, before returning to England to attend a Central Flying School course. Subsequently he became an instructor at No. 5 Flying Training School at Sealand, flying Siskins and Bulldogs.

Britain at this time was jolting unhappily towards the inevitable gamble

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H.R.H. Princess Elizabeth on her visit to the R.A.F. College, Cranwell, as Reviewing Officer. She is accompanied by Air Commodore L. F. Sinclair, G.C., C.B., C.B.E., D.S.O.

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offered by the rise of Europe's dictators. Disarmament and appeasement were in the nature and make-up of British diplomacy; the armed Services were fed under the table for fear of arousing suspicion and hostility in the dictatorial mind. Only when Italy pounced upon Abyssinia did Britain begin to drop bigger scraps to her Services, still under the table! The R.A.F. expanded a little, and the best recruits were encouraged to come forward.

One of Sinclair's jobs at this time was to test all the flying pupils then being trained under civilian arrangements throughout England. His appointment was Superintendent of Reserves; he found little wrong with the quality of the young men who were coming forward to serve in the air.

In 1936 he returned to his old squadron in India (No. 28) for a short time before joining R.A.F. Headquarters, India, as a personnel staff officer. He remembers this second tour in India as being of exceptional interest and pleasure. On the way out he navigated his A.O.C., Air Marshal Sir Philip Joubert, over France, Italy, Yugoslavia, Rumania, Turkey, Syria, Iraq and so to India, in an Airspeed Envoy. After his arrival he lost no time in resuming a favourite sport, pig-sticking, with the Tent Clubs of Ambala, Delhi and Meerut. His mare, "Miss Fire," won the Kadir Cup in 1938, but, having broken a collar-bone during the earlier rounds of the competition, Sinclair had to be content to see a friend ride "Miss Fire" to final victory.

With the clouds of war gathering he came home to the Air Ministry. The storm burst when he was Chief Flying Instructor at No. 5 Flying Training School. An active flying command came in May, 1940, when he took over No. 110 Bomber Squadron, stationed at Wattisham. Thenceforward the Wing Commander was to have a busy time, and an exciting one, but I have had the greatest difficulty in getting him to recall those days! Were there not such things as citations for awards for gallantry I should not be able to tell you how he won his George Cross (the highest award for bravery performed not in immediate contact with the enemy) at Wattisham! I have recently finished a book on the George Cross—*For Gallantry*—and, after perusal of every citation of this decoration, can only say that it runs the V.C. a very close second. It is, of course, an award primarily for civilians. Such was the King's wish when, of his own initiative, he instituted the medal in 1940. But in all three fighting Services incidents occur not "in the face of the enemy" (a stipulation attaching to the V.C.), when a man or woman displays courage of this degree—that, regardless of his or her own life, and in knowledge that it may well be forfeit, prompt action is taken to save the lives of others or to safeguard valuable property.

This is what Sinclair did. During the night of 30th September, 1940, an aircraft, taking off at Wattisham, burst into flames. Sinclair was watching the take-off. He immediately rushed towards the burning machine, and, as he got near, two 250-lb. bombs exploded. He knew that two more bombs were in the aircraft, but, without a moment's hesitation, he ran on, dashed into the fire, and succeeded in dragging the air gunner to a safe distance. The citation ends: "This officer displayed the most complete disregard for his own safety."

After another period as Chief Flying Instructor at No. 13 O.T.U. he took over command of Watton with its two Blenheim squadrons. Later he became S.A.S.O. of No. 91 (Operational Training Unit) Bomber Group in time for the first thousand-bomber raid, when aircraft from the O.T.Us. were used for the first time. It was a proud boast of No. 91 Group at the time that it put up more aircraft than any of the other operational groups. "The raid was the greatest success, and our losses were extremely small," says Sinclair. Leaving, in November, 1942, with four Bisley squadrons for the invasion of North Africa, he

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arrived with the first squadron on the day after the landings had taken place—thereafter his responsibilities grew with the hour.

As A.O.C., Tactical Bomber Force, 1st T.A.F., he commanded a formation of Allied airmen—British, American and South African—during the invasion of Sicily and the landings and campaign in Italy. When the force became entirely American, Sinclair, the only Englishman, retained command.

His next appointment was as Inspector-General of the Mediterranean and the Middle East—an appointment of the widest possible character involving a great amount of personal contact work. In 1944 he became S.A.S.O. to the Balkan Air Force, then commanded by Air Marshal Sir William Elliott (as he now is). This period of the war was one of unusual interest. The Allies were on the offensive, the pace quickened, and hearts beat gladly as victory came in sight. Much has been written of the guerrilla war waged by Tito in Yugoslavia against the common foe, and the Balkan Air Force played a vital role in sustaining the isolated detachments of Tito's highly irregular brigand army. Only the other day a friend of mine met a strikingly handsome Yugoslav woman in the mountains of Croatia who claimed to have killed, single-handed, one thousand mere men!

Sinclair says: "We had a lot to do with Tito through Brigadier Fitzroy McLean, as we provided all his air support and air supply." When Germany surrendered it did not bring peace to the peoples of Greece, who, divided within themselves and aided treacherously from without, killed and destroyed their own. At this time, also, the Balkan Air Force, while it remained, became a stabilizing factor in an unhappy land.

The war ended with Sinclair widely travelled and, through the nature of his varied appointments, knowledgeable about the man-power problem of his Service—what the R.A.F. needed and the quality of human man power available for it. Such experience was invaluable when he became Director of Postings at the Air Ministry, where he remained until going to the Imperial Defence College at the end of 1946. Here, of necessity, he dropped rank, but again became an Air Commodore as A.O.C., No. 2 Group, Germany. This was the group in which he had served, in No. 110 Squadron, at the very beginning of the war. His task now was to re-form the group; as he puts it himself: "It was the first turn of the tide of the Air Forces in Germany, from the complete post-war run-down to the present shape of things." He assumed his present appointment at Cranwell after being, for a time, Assistant Commandant at the Staff College.

"I have had no unusual flying experiences; I have had a very dull time," is what he says! Which, of course, is about as untrue as it is modest. He goes on to say: "Most of my spare time I spend with horses, which I have managed to keep somehow, even during the war. At Cranwell there is very good hunting."

On 1st August this year Cranwell was honoured by a visit from Princess Elizabeth, as the College's reviewing officer. My photograph shows the Commandant receiving his Royal visitor on an occasion which will long be remembered by the cadets of 1951.

If I end with a recital of the honours which have so far come his way, I think that they will stand as an index to the career of this versatile, famous airman. In 1940 he won the D.S.O.; in 1941, for the incident which I have related, he gained the G.C.; in 1943 he added a bar to his D.S.O.; the Americans awarded him the Legion of Merit, and his own country made him a C.B.E.; in 1944 the French Legion of Honour appeared on his uniform, and in 1946 the ribbon of the C.B. was placed next to the dark-blue ribbon of his G.C.

And I do not, for one moment, suppose that Laurence Sinclair's career will end there.

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PLAIN MEN AND PLAIN WORDS

By Squadron Leader R. G. Ralph, M.A., Ph.D.

WRITING on "Plain English," a contributor to the last issue of The Royal Air Force Quarterly presented himself as a man bewildered by the modern clamour for plain writing. This article is not an attempt to disparage his lively remarks. We all know that too much obscure, wordy, and often meaningless English is being produced; we know, too, that such English wastes the writer's and the reader's time and corrupts a noble language. Those who shout for plain—or clear—or direct—English are justified. But, as the author of "Plain English" pointed out, they often puzzle those they seek to help.

Some practical rules for plain English are easily stated—use finite verbs, make them transitive when you can, keep them in the active voice, and support them with concrete nouns; avoid the unnecessary abstract noun, the superfluous adjective, the limp passive construction, the encumbering participle, the circumlocutory cliché, and the ready-made phrase. The ordinary man, having brushed up his grammar until he can recognize the parts of speech, may apply these rules mechanically, and will almost certainly improve his English. Yet often only a blind faith leads him. "Is this not," he thinks, "dull and immature English?"

The chances are that his English is not dull and immature. He is dubious about it merely because his advisers have not explained certain principles that would enable him to understand what he is doing when he follows their rules.

He must first understand that civilized man has evolved two means of communication, the spoken language and the written language, and that these two are not very much alike. The rhythm, pace, volume, intonation and accent of the voice, and the speaker's "presence" are vital to communication by speech, *and they cannot be written down.* Groups of words that would convey clear and precise meaning when spoken may be meaningless when written. Because written English has to do without so many important aids to communication, certain conventional ways of arranging written words have gradually developed. We are so familiar with these conventions, which we pick up from reading other people's work, that we forget that they are conventions. Yet we have only to look at writing by young children to realize that these arrangements of words do not come naturally to us. We have to learn them.

Here, then, are the first two principles of plain English. We must first disabuse our minds of any idea that we should write as we talk, or talk as we write. Secondly, we must become familiar with the conventions of the written language by studying the work of competent writers.

Before we can learn much from competent writers, however, we often have to remove another obstacle from our path. The author of "Plain English" asked: "What is the purpose of writing?" He answered the question himself: "It is to convey information or intelligence." This is correct, but—and this is the cause of his bewilderment—it is only one purpose of writing. Language is more often used, and often with far greater effect, to evoke emotion. The words "Liberty, Equality, and Fraternity" inscribed on a banner do not convey information. The breasts of those marching behind it may swell with emotion, but their minds do not receive any facts from the three words. If people get any information from the words, they get different information from that received by other people. When a man shouts, "Down with tyranny!" those of his audience who think he is a Communist may burn with excitement at the thought of Mr. Churchill hanging from a lamp-post in Piccadilly; those of his audience who take him for a Con-

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servative may feel the same glow at the thought of a Muscovite mob lynching Mr. Stalin. Any information they think they receive from the words they themselves put into the words; there has been no communication of facts, only communication of emotion, between the speaker and his audience.

No one can quarrel with the use of words to evoke emotion, for it is the basis of all imaginative writing. What is the virtue of Wordsworth's

> "Old, unhappy, far-off things";

or Keats's

> "A little noiseless noise among the leaves,
> Born of the very sigh that silence heaves"?

It is not in any information they convey, but in their power to touch the reader's emotions and stir his imagination. That is why a great imaginative writer is sometimes, though not always, a poor model for the writer of factual prose.

The advocates of plain English quarrel with the person who, when he ought to be conveying information, is merely making a vague appeal to the reader's emotion. Consider the sentence: "The country is still struggling with post-war difficulties." Notice how vague it is, how differently it would be interpreted by different persons. What do we mean by "the country"? Is it the individual people, the manufacturers, the traders, the politicians, the financiers, or the very land itself? What are the difficulties? Are they the repair of bomb damage, inflation of the currency, adverse trade balances, industrial disputes, lack of houses, the demobilized soldier's efforts to readjust himself to civilian life, or the whole lot and more vaguely lumped together? The sentence could only begin to have meaning if the difficulties were isolated one by one, and the word "country" closely defined. Notice, too, how the sentence is obscured by slight waves of emotion. There is pride in one's country's struggle, worry lest the struggle should be unsuccessful, and reassurance because the difficulties are only "post-war."

All words, except possibly those short words such as "the," "and," "as" and "of," which are merely parts of the logical structure of a sentence, have emotional echoes, and we can never escape these echoes. The writer of "Plain English" asked: "Who prefers a plain woman to a pretty one?" He thereby drew a red herring—the emotional back-lash of "pretty woman"—across his own trail. Suppose he had asked: "Who prefers a plain man to a sly one?" This is no sneer at the writer of "Plain English." The present writer has probably been entangled in the same way on this very page. These emotional effects of words are the raw material of the imaginative writer, but to the factual writer they are a nuisance.

Here, then, is the third principle of plain English. When we are trying to convey facts we must be as certain as we can be that we are not entangling ourselves and our readers in the emotional back-lash of words. We should, unless we are prepared to define them precisely, avoid such explosive and intangible expressions as "class war," "absolute truth," "human values," "high principles," "freedom of the individual," "fundamental laws," and so on. But even the simplest statements are traps. If I write, "This is a desk," I state a fact. If I write, "This is a steel desk," I add another fact. But if I write, "This is a splendid desk," I am not adding a second fact to the first. I am defining my attitude towards the desk, and trying to evoke an emotion—approval—in the reader.

We can now examine the charge that the advocates of plain English claim that a short word is always better than a long one. If any of them do, they are mistaken. As the writer of "Plain English" pointed out, the exact word, whatever its length, is the one to be used. But let no one suppose that short, homely words are ugly, or that they make one's work monotonous to read. We may take at

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random some of the most effective passages in our literature. Would you have a profound statement? Look at Shakespeare's

"Men must endure
Their going hence, even as their coming hither:
Ripeness is all."

Solemnity? This is Milton:

"Nothing is here for tears, nothing to wail
Or knock the breast; no weakness, no contempt,
Dispraise or blame; nothing but well and fair,
And what may quiet us in a death so noble."

Description? Tennyson is a shade precious, but very polished:

"The lights begin to twinkle from the rocks:
The long day wanes: the slow moon climbs; the deep
Moans round with many voices."

Humour? Turn to Chesterton's

"Before the Roman came to Rye or out to Severn strode,
The rolling English drunkard made the rolling English road."

Examine, one by one, the words that make up those quotations. There is nothing ugly, dull or childish about short words. The rule for the ordinary man is —never use a long or unusual word unless you are sure that it expresses your meaning more exactly than a homely word would do.

There is another danger which the writer of plain English should be able to recognize. This is a survival of "word magic." Words are only labels, and have no real existence in themselves. Yet when we invent a label, we assume, often wrongly, that something must exist to bear that label. Nowadays, for example, some people suffer from diseases which do not exist, but which they think exist because sellers of patent medicines have invented names—not diseases, just names. We have all felt a slight muzziness and a dryness in the mouth after prolonged travel in crowded buses and tube trains. Let some manufacturer of pills coin the name "urban migraine" (never mind what it means), and dozens of people will soon imagine that they are suffering from a disease, and hasten to buy the only pills guaranteed to cure it. As opposed to words that are labels for solid and familiar creatures and objects, we have in English many "ideal" words, which refer only to vague, ideal notions. These are such words as "progress," "liberty," "truth," "democracy" and "propaganda." By a curious "assumption of the converse" we get into the habit of talking and writing about these notions as though they were real, existing things, circumscribed in time and space like ships and sealing wax. When we use "ideal" words even a little carelessly, the chances are a hundred to one that there is no communication of information between ourselves and our readers. Whatever facts or ideas may be in our minds are not accurately transferred, if transferred at all, to the reader's mind.

The ideas expressed here may seem philosophic rather than practical, and they are necessarily over-simplified. But a person who has not thought a little about these ideas cannot grasp the why and the wherefore of the practical rules for the writing of plain, factual English. There is one final piece of advice—do not think of writing as a means of self-expression. Every great writer who has told us anything about his craft has revealed that, however great an urge to express himself he may have felt, he thought of his writing as a means of *impression*. He chipped and carved and polished, to fashion with words an intaglio that would impress a clear and perfect image on the reader's mind. And that is what the humblest writer must do if he is to write "plain English."

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LETTERS TO THE EDITOR

To the Editor, THE ROYAL AIR FORCE QUARTERLY.

20th November, 1951.

SIR,

Though I agree wholeheartedly with the stimulating ideas expressed by Squadron Leader Tippett in his article on "Plain English," may I be forgiven for thinking them unpractical?

"Plain English" is not for those who have the knowledge and the feeling for language implied by Squadron Leader Tippett. But the Royal Air Force rightly chooses many men who are not handy with words for their ability as leaders, flyers or technicians. Read his lecture to these people, tell them to embellish, to use a wide vocabulary and to make their English lively, and what will you get? Not the polished prose or the impressive ruggedness we are led to expect. Pilots' slang, orderly-room jargon and the meretricious clichés of the daily Press and cheap detective fiction will be your "tuppence coloured." You, sir, will probably prefer the economy and clarity of plainness at half the price.

Meanings must be made clear in the Service, and our teachers of English wisely insist on "plain words." If the student can be purged to the discipline of saying what he means in simple words of known value, then perhaps there will be time to expand vocabulary and style by reading good English that is worth imitating. Not everyone will trouble to do this. But we must have clarity and conciseness in all our writing, even at the price of ugliness, and I believe, sir, that this cannot be done without teaching "Plain English."

I am, sir,

Your obedient servant,

O. G. TAYLOR, *Flying Officer*.

GORDON SHEPHARD MEMORIAL PRIZE ESSAY COMPETITION, 1951-52

The subject for the Gordon Shephard Memorial Prize Essay Competition, 1951-52, is as follows:

> "It is generally conceded that air superiority is a prerequisite to success in a land or in a sea offensive against a major power. It is also a prerequisite to success in an air offensive. It may even be that, if air supremacy can be won, the enemy will have lost all hope of victory. Can it indeed be said that the defeat of the enemy air force is the first task of a nation at war with a major power?"

The essays are not to exceed 10,000 words and should be typewritten, in triplicate. Essays should be sent direct to the Under-Secretary of State for Air, Air Ministry (D.S.T.), Metropole Buildings, Northumberland Avenue, London, W.C.2, and should reach the Air Ministry not later than 30th April, 1952.

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AMERICAN FOREIGN POLICY

BY WING COMMANDER R. F. PEMBERTON, M.C., T.D.

IF you speak to an Englishman about British foreign policy, as likely as not he will say, "Have we got one?"

Not so in America. The Department of State in Washington has been at pains to acquaint the American public, by means of an attractive and clearly expressed booklet,* with the details of its foreign policy and the facts and principles upon which it is based.

"Our policies," the booklet says, "reflect what we are and what we want," and it traces certain constant characteristics in the nation's history upon which its foreign policy is based and which therefore go far to explain that policy. Here are some of them:

"We are an independent nation and we want to keep our independence.

"We attach the highest importance to individual freedom, and we mean to keep our freedom.

"We are a peaceful people, and we want to get rid of wars and the threat of wars.

"We have a comparatively high standard of living. We want to raise the standard so that everyone in the United States will eventually have a chance to earn a decent and secure living.

"We are a friendly people. We have no traditional 'enemies,' and we want to be on good terms with every other people."

It is the job of the American Government, as agent of the people, to promote these national interests.

This sometimes involves the sacrifice of some national interests in order to preserve others. For example, three times in recent years the American people have been forced to disrupt their peaceful lives and take up arms to defend their independence and freedom. The latest occasion is, of course, the war in Korea, where the United States took the initiative in combating unprovoked aggression and has suffered more than 80,000 casualties. The aggression in Korea is but one example, on a comparatively small scale, of what might happen to the United States—or to any non-communist power—if they were not prepared to resist. Hence their rearmament programme, which is designed to counter the threat to their liberties from the Soviet Union. How great is that threat may be gauged from the following facts, quoted verbatim from the booklet:

"Since 1945 the Soviet Union has taken some 7½ million square miles of new territory and more than 500 million people under its control. It is now trying to extend its empire across Asia.

"Soviet expansion has wiped out three nations: Estonia, Latvia and Lithuania. It has reduced to servitude six nations which were independent before 1939: Poland, Hungary, Rumania, Bulgaria, Albania and Czechoslovakia. And Soviet leaders have marked communist China for the same fate.

"The people who have come under Soviet rule have lost not only their national independence but their individual liberties. Each satellite is a police

*_Our Foreign Policy_—The Roots and Objectives of United States International Relations as Outlined to the People of the United States (Department of State Publication 3972, General Foreign Policy Series 26).

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state on the Soviet model. Its Government is controlled—and often actually run—by Soviet agents. Its economy is exploited for the benefit of the Soviet Union. Its people live in terror under the eyes of the secret police. They have no freedom to speak, to vote, or to worship as they please. They can—and often do—disappear in the night to prison, concentration camp, or death, and no one dares to ask what has become of them.

"The Soviet Union and its satellites deliberately obstruct the work of the United Nations and other international organizations. Their people are forbidden to mingle or communicate with Americans and all other free peoples."

The free world, of which the United States is the most powerful nation and champion, does not oppose the Soviet Union because the Soviet Union is, or claims to be, a communist state. The free nations all admit the right of every State to adopt, by free majority vote, communism or socialism or any other political principle, provided always that it does not try to impose its own political principles upon other States. The free world opposes the Soviet Union because the latter's government is bent upon spreading its power and its political philosophy by force, by terror, by subversion, by all kinds of propaganda and by every other means it can devise, regardless of the real wishes of its own people and of those of all other States which it can dominate. The rulers of the Soviet Union do not believe in "free choice": the free nations do. That is the main cause of antagonism.

The State Department at Washington holds that the methods of the Soviet Union are most likely to succeed where there are "situations of weakness," and conversely Soviet pressure is usually ineffective where there are "situations of strength." Situations of weakness exist (i) where people have become demoralized by war and enemy occupation; (ii) where the Soviet Army occupies a country; (iii) where governments are weak and the people are divided; (iv) where colonial people are in revolt against the rule of their metropolitan government; and (v) where people are bowed down with poverty and can see no way out of their troubles.

The policy of the United States, in meeting the threat of Soviet expansion, has therefore been to establish and maintain situations of strength; and thereby they hope not only to resist aggression but eventually to reach a mutually satisfactory agreement with the Soviet Union, which can be achieved only by "negotiating from strength." Clearly the policy of converting situations of weakness into situations of strength involves not only military action, e.g., rearmament, but also economic and political action, since the symptoms revealed in situations of weakness are largely economic and political as well as military weaknesses.

In order to create a situation of strength in Western Europe, which was a task of first priority, the United States introduced the European Recovery Plan with the object of helping to restore the economic stability and independence of the European nation-states, thereby making them at one and the same time more resistant to communist propaganda and better able to defend themselves against any attack. The original E.R.P. proposal was made to all the European States, including Russia. But Russia rejected the offer for herself and forbade her satellites to accept it. Obviously Russia did not want European recovery then, but would rather have the European peoples suffer privations and hardships, on the assumption that their misery would make them into communists. That was the turning point. Thereafter the United States concentrated also on the military defence of Western Europe and launched its Military Assistance Programme to help and to expedite the rearmament of the Western European States.

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Western Europe is, in the official American view, of the greatest strategic importance as the main bulwark against the spread of Soviet power, but the vision of the American State Department covers the whole world. Creating or helping to create situations of strength in many other parts of the world involves action in support of the United Nations Organization as a bulwark of peace and a deterrent to aggression; it involves action under the Charter to build up and pool the military resources of the United States and of other free nations; it involves action to weld the free nations together politically and to develop collective policies for a constructive and dynamic peace; it involves economic action to enable the free nations to prosper by increased production and extended trade; and it involves action to promote a flow of ideas, of information, of people and of goods, to invigorate the free societies and to make the benefits of freedom clear to all people on both sides of the Iron Curtain.

The State Department, as agent of the American Government and people, never overlooks the importance of national security, which is the paramount need at present. The Americans consider security as a twofold problem: the immediate problem and the long-range problem. They ask first what kind and degree of security they can create *now* in the world as it is today; and, second, what kind and degree of security they must start to build now in order to ensure a safer world for their children. Let us consider the immediate problem first.

Reduced to plain and brutal terms, this problem is how to survive as a free nation in a world which is politically still in the pioneer stage resembling, on an extensive scale, the pioneer stage in American westward expansion before the establishment of law and order, when every settler had to carry arms and to protect himself and his family. Realizing that the United Nations was not developing, as had been hoped, into an effective guardian of international peace and security, the American nation decided to take action themselves. Accordingly, they adopted, in March, 1947, the policy of giving support to free peoples who are resisting attempted subjugation by armed minorities internally or by outside pressures. This is known as the "Truman Doctrine." Its first application was the sending of military and economic aid to Greece and Turkey, which was authorized by Congress in May, 1947. In the summer of the same year they took advantage of the approval given in the United Nations Charter to "regional arrangements" by signing the Pact of Rio de Janeiro with the American Republics which had already, in the Act of Chapultepec in 1945, made an agreement among themselves for mutual assistance. The Rio Pact was the first of its kind to set up machinery for collective action in case of an attack on any American State from either inside or outside the Western Hemisphere.

Not content with local security against attack, they proceeded to advance their defensive system across the Atlantic and to include in it the nations of Western Europe. The defence of Western Europe involved the organizing of a collective security system that would convince an aggressor in advance that he could not pick off his victims one by one; it involved putting the Western European nations in a position to repel at least an initial attack; and it involved giving to the free peoples of Europe that sense of security which would put new hope and vigour into the Recovery Programme.

Building on the Brussels Treaty of March, 1948, President Truman immediately promised American help to the free countries of Europe which had determined to protect themselves. And ten months later he pledged the United States to "provide military advice and equipment to free nations which will co-operate with us in the maintenance of peace and security," thus extending to Western Europe the policy of military assistance already in operation in Greece,

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Turkey and China. From this was born the North Atlantic Treaty of 1949 and its Organization, the naval, military and air command, structure of which was noticed in THE ROYAL AIR FORCE QUARTERLY of July, 1951, and must now be well known to readers.

The success of combined military and economic aid to Greece and Turkey determined Congress to authorize, in September, 1949, a much broader programme of military aid which was embodied in the Mutual Defence Assistance Act, designed particularly to help the nations that had signed the North Atlantic Treaty. "Self-help and mutual aid" were the keynotes of this enterprise. Besides Western Europe, which received the lion's share, other key places were selected for the establishment of situations of strength. Among them were Greece, Turkey and Iran, Korea, the Philippines and "the general area of China."

These measures, combined with a considerable increase in the nation's basic military forces, complete the preparations that have so far been made to solve the immediate problem.

The long-range purpose of the United States is to transform the pioneer international society of today into an orderly community of free nations, i.e., to build an international community. They admit that this may take generations, but they have made a beginning. Sheer necessity may speed up the process. This novel idea is typical of the American outlook; and it may be that they will go down to history as the first people to take practical steps towards establishing a world family of peace-loving nations.

The first step towards creating an international community was support of the United Nations. Though that body has so far disappointed its founders to a great extent, it is still in being. While the greater part of its power lies in that "consensus of moral judgment" which is the basis of any community, it has not been without success in discouraging and stopping aggression, and its record in this field has already far exceeded that of the ill-fated League of Nations.

No one realizes more fully than the Americans that peace depends to a great extent on economic conditions. And a part of their long-term policy, as also of their immediate policy, is to promote economic stability throughout the world, and to encourage and assist a progressive raising of the standards of living of all peoples—especially those who now live on or near the starvation line. This they call their "economic foreign policy."

The Marshall Plan for European recovery we have already noticed. Its success is now well known. And it is interesting to note that, although it has been financed entirely by the United States, Mr. Paul Hoffman, head of the Economic Co-operation Administration, maintains that European recovery has not cost the American taxpayer a nickel. But for the economic and political revival of free Europe, he says, the United States would have had to spend many billions more on armaments.

President Truman's "Point Four Policy," announced in his inaugural address in January, 1949, is also a part of America's long-term foreign policy. It is no less than applying American capital and American knowledge and skills to the under-developed areas of the world, subject of course to the willing co-operation of their inhabitants. "Our aim," said the President on that occasion, "should be to help the free peoples of the world, through their own efforts, to produce more food, more clothing, more materials for housing and more mechanical power to lighten their burdens."

The encouragement of world trade is another important item in America's foreign policy. Under the Reciprocal Trade Agreements Act the United States joined with twenty-two other nations at Geneva in 1947 in sharply reducing

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tariff rates that affected half the world's imports; and the process was repeated at Annecy in 1949 and at Torquay in 1950. But tariffs are not the only obstacles to the flow of trade. An International Trade Organization is being formed to reduce or abolish national quotas, customs regulations, currency restrictions and the like, on a reciprocal basis; and the American Congress is, at the time of writing, cautiously considering to what extent it will support the movement. Those who support the I.T.O. believe that it will pave the way for closer political and economic co-operation among the free nations.

Finally, national independence and the rights of the individual are principles to which Americans pay the greatest respect. America's Declaration of Independence states as self-evident truths that all men are created equal and endowed with certain inalienable rights, including Life, Liberty and the Pursuit of Happiness. But a man's life would surely be "solitary, poor, nasty, brutish and short" if he had to rely solely on his own efforts to maintain himself. To enjoy the full life at its best there must be the freest interchange of goods and services between men. And the same with nations. The United States would have all nation-states free and independent but not self-contained and isolated. Only by unrestricted interchange of goods and services can the nations of the world achieve the highest possible standard of living.

The foreign policy of the United States of America is based on the independence and interdependence of men and of nations. The more one examines that policy and watches it in operation, the more one is convinced of the sincerity of those who formulate it and those who implement it.

It should, however, be noted and remembered at all times that foreign policy, as planned by the State Department, is, by the Constitution of the United States, generally subject to the approval of Congress, particularly where finance is involved or the making of treaties. But, on the whole, the foregoing summary gives a true picture, in broad lines, of current American foreign policy.

MACKINDER TODAY

(*Continued from page 40*)

entity centred on Europe, the richest natural region of the globe, it could stand unchallenged and if it wished could bring the remainder of the world under its domination.

CONCLUSION

Mackinder's theory thus remains a powerful generalization of considerable import. Much of it is apposite to the present. The objection to accepting it wholly as a practical guide lies in the second dictum. The difficulty is to delimit, in the light of improving communications, the effective heartland. The arrival of total or global war tends also to lay the strategical emphasis on man power and industrial capacity rather than on space. In consequence, Mackinder's heartland tends to diminish in importance its place as the pivot being taken by Europe. Changes in the sources of power for industry and in the age composition of population may in the course of time again change the picture, but are hard to forecast. Meanwhile the theory, if used critically, is of assistance in assessing the trend of political and military events.

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[Photo: Westland Aircraft Ltd.

THE WESTLAND-SIKORSKY S-55 HELICOPTER

Primarily intended for military duties, the S-55 can carry 12 people, including pilot and co-pilot, and has a range of over 400 miles and a top speed of 110 miles an hour. Normal gross weight is 6,800 lb. and useful load 2,400 lb.

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PROTOTYPE DESIGNS AND PRODUCTION ORDERS

By Michael Mallett

WHAT is a prototype? Of course, it is a "one-off" job, but it may be built at the request of the Ministry of Supply and intended for ultimate production, or it may be merely a design project sponsored by the Ministry. Again, it may be a private venture (a P.V. type) produced by an aircraft designing company with the courage of its convictions.

But the Ministry pays for the major part of prototype development. Its procedure is often to issue a specification and then ask *two* firms to build prototypes. Then it will finally choose one of these for a production run.

In normal times British industry is more a prototype than a production one—a rule which applies in other spheres than aviation. The reason is finance. And with prototypes costing perhaps £1m. each, it is easy to see why.

But this situation has been temporarily changed by the Korean crisis. Prototypes in the air last summer have now come to ground for a production run. But the process is a slow one. This country, the first to build a jet, still has no turboprop aircraft on naval carriers, no multi-jet bombers in service, few jet night fighters and obsolescent interceptors.

So while Britain keeps its lead with advanced designs by considerable flight testing of prototypes there is not the slightest cause for complacency when considering the speed with which prototypes become productive.

WESTLAND SIKORSKY S.55. ENGLISH-BUILT PROTOTYPE DUE TO FLY THIS YEAR

The S51 Dragonfly helicopter is now the standard communications and rescue aircraft of the Royal Navy—and the S51 is the "younger brother" of the S55.

The R.A.F. has made a great flourish about its fleet of three in Malaya. But it needs ten times as many to meet its world-wide commitments—the American use of the helicopter in Korea has shown what the type can do.

The Navy seems much more helicopter-minded than the R.A.F. Trials recently made on board the light fleet carrier *Fort Duquesne* may lead to each convoy having a merchant "aircraft carrier" with a steel flight deck on its stern. The technique will be for helicopters to fly off these converted merchant ships on search for enemy submarines. They may carry radio sono-buoys.

Eventually the Navy hope to use the helicopter in both the search and the strike role—the S51 carries a small depth-charge (its total load could be 1,200 lb.), but the S55 can carry over twice the war load. Its range is 400 miles.

SAUNDERS ROE SR/A1. PROTOTYPE. FIRST FLEW JULY, 1947

Flying-boats are out of fashion with the Service departments. But it seems a common-sense view, and one which is finding support outside Service departments, that the fighter flying-boat ought to go into production.

Tests on the SR/A1, the world's first jet-propelled flying-boat, are now in progress at Cowes, I.O.W., and though no order for this prototype can be expected, there is hope for other development along the same lines.

The SR/A1 has two Metro-Vickers Beryl axial engines mounted side by side in the hull. Since the Beryl is no longer under development, any later version of

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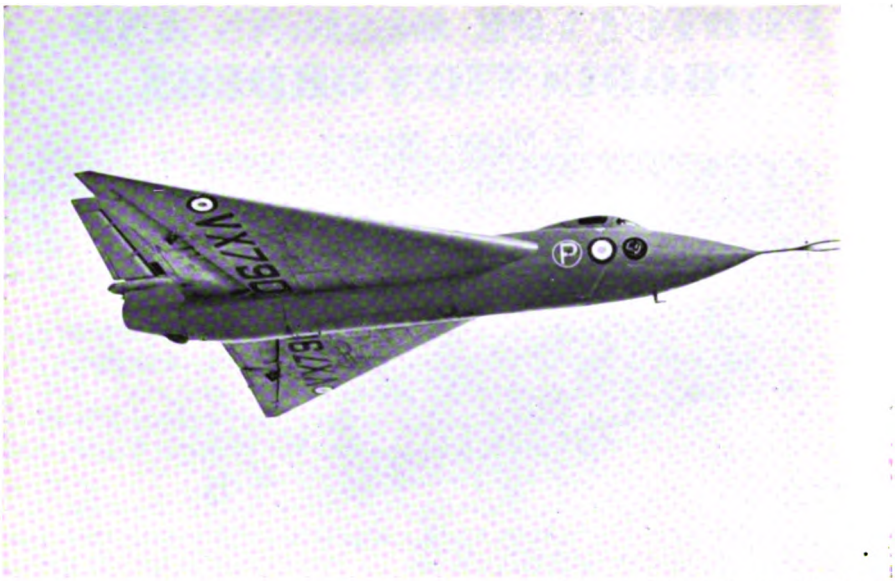
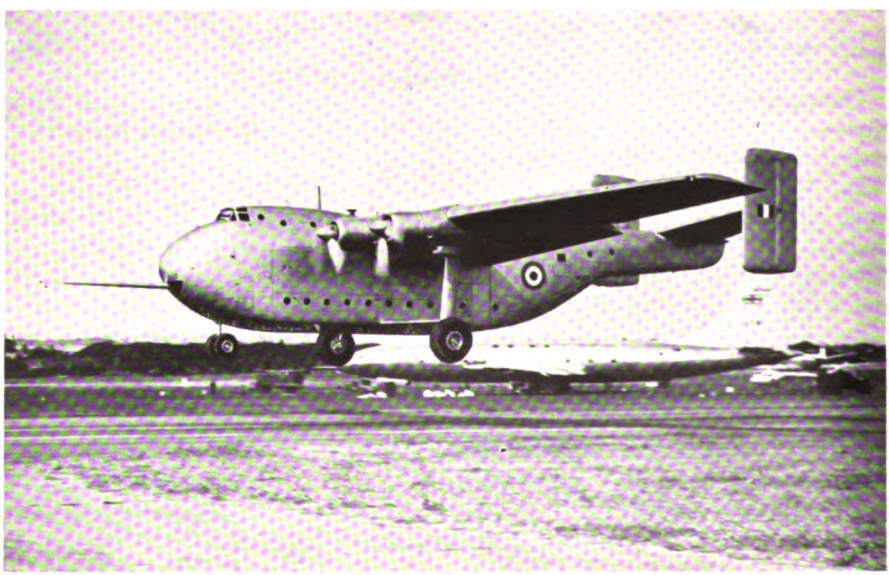


[Photo: A. V. Roe & Co., Ltd., Manchester

Will the delta wing design be the predominant type of fighter of the future?



[Photo: Blackburn & General Aircraft Ltd.

GAL 60 UNIVERSAL FREIGHTER

Second only in size to the Brabazon, can carry 15 tons of cargo or 90 troops

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the flying-boat fighter would presumably have newer British axial engines—Avon or Sapphire.

The pilot sits in a pressurized cabin well above the wing and has a Martin Baker ejection seat. Armament is from 20-mm. cannon mounted in a gun bag forward of the cockpit.

All-up weight is 15,000 lb.

SCOTTISH AVIATION. PRESTWICK PIONEER 2. PROTOTYPE FLEW 1950

The Lysander & Storch liaison planes were classic examples of aircraft tailor-made in utility style to suit a particular job. The Pioneer is a worthy successor. It is sturdy and simple to service. It has an extremely low stalling speed and is designed for operation from rough unprepared airfields. Its one drawback is that it is an expensive aircraft.

It is said that a small production order may be placed on completion of trials so that a fleet of Pioneers can go into service on the rocket range at Woomera, in Australia. The R.A.F. would find the Pioneer useful as an artillery spotter and liaison plane. A new "eyes of the Army."

With the Alvis Leonides engine, the Pioneer has 520 horse-power in its Mark 2 version. It seats five, including the pilot, but seats are removable to make room for stretchers. Take-off distance to clear 50 feet is about 250 yards, but the machine has been seen to take off in under 100 yards. Stalling speed is 42 m.p.h. Cruising speed about 145 m.p.h. Normal range is 400 miles.

BLACKBURN & GENERAL UNIVERSAL FREIGHTER. GAL 60. PROTOTYPE FLEW JUNE, 1950

"Air-lift" may have contributed as much to winning the last war as heavy bombing. Certainly in the "Cold war" it staved off a political defeat during the Berlin blockade.

R.A.F. Transport Command notably lacks aircraft capable of a full-scale air-lift. Even its large fleet of two-engined Valettas and four-engined Hastings could make only a very modest freight operation—witness its failure to carry para-troops to Cyprus or to maintain the Korean ambulance service. Worse still, neither aircraft could carry enough supporting equipment to keep a landing force supplied with arms and ammunition. The R.A.F. has no aircraft capable of carrying a large gun or tank, and no aircraft with rear-loading doors under the tail.

The GAL 60, second only in size to the Brabazon, can carry fifteen tons of cargo or ninety troops, or, divided into two, both troops and freight. The high tail leaves the rear fuselage clear for loading, and at the door there is an electrically operated ramp. The floor is reinforced for heavy loads.

Cruising speed is 164 m.p.h. at 8,000 feet, span 162 feet and length 99 feet. Power plants are four Bristol Hercules piston-engines.

DE HAVILLAND VENOM NIGHT FIGHTER 113. PROTOTYPE FLEW 1950

The R.A.F.'s preference is for twin-engined night fighters and for that reason, when it became necessary to replace the piston-engined Mosquitos last year, the Meteor N.F. 11 was ordered and the Vampire class by-passed.

But now, with development of the Vampire and the new Ghost engine, de Havilland have flown a two-seat, radar-equipped version of the high-performance Venom. The land Venom will, when it goes into service, be one of the

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fastest interceptors in the world. Can the R.A.F. afford to miss the night-fighter version?

It may be that, security apart, the R.A.F. has ordered it after all. The Secretary of State for Air, speaking in the Commons nearly a year ago, referred to "other types of jet night fighter" on order as well as the Meteor.

All performance details are secret—except the thrust of the Ghost engine (5,000 lb.) and the armament—four 20-mm. cannon.

The Navy has decided to order a version—the Sea Venom—as a two-seat, all-weather fighter—for operation from carriers. Apart from an arrester hook, this is much the same as the night fighter.

A. V. ROE. AVRO 707B. FIRST FLEW SEPTEMBER, 1950

There is good evidence for supposing that the Supply Departments are concentrating their prototype development on the delta wing design in the belief that, for the fighter of the future, it will be the predominant type.

Four delta aircraft are being flown in Britain, the Fairey F.D.I., the Boulton Paul P. 111 and the two Avro 707's. Others are under construction and models of new designs are being examined in wind tunnels and structure test rigs.

All deltas now flying have certain concessions to conventionality—tail planes, etc. But the final production deltas may be out-and-out flying wings in which the tail plane is eliminated because of its drag effect at high speed, and all controls, fuel tanks, armament and engine will be stowed within the profile of the wing—the lift producing surface.

The 707B has flown for more hours than any of the other British prototypes, and its pilots seem happy about its aerodynamic qualities. All three deltas are fitted with "elevons" (a combination of elevators and ailerons) and carry emergency parachutes which can be released at critical moments during test flights or used as an air brake when landing at high speed. All three are fitted with tricycle under-carriage and wing span is small—about 33 feet on the Fairey, indicating the trend towards the very small fighters of the future. Wings are swept back about 45 degrees.

Performance details of all three are secret but, except for the Avro, all are low-speed research types with Rolls-Royce Derwent engines.

THE FLYING-BOAT REPLACEMENT. DRAWING-BOARD ONLY

This prototype is not yet beyond the drawing-board stage and few details are known. But the general facts are a new boat, with four turbo-prop engines, having twice the displacement of the Short Sunderland and much greater speed. It may well be a Short design.

Korea has pointed up the need for such an aircraft. Coastal Command in Britain is now committed to shore-based, long-range land planes like the Shackleton, but overseas, on the Empire trade routes, shore bases are not always a possibility.

In the early days of the Korean war last summer, the northern advance was so rapid that all except two airfields were put out of action and it was not possible to build emergency landing strips, so early reconnaissance work was done by two squadrons of Sunderlands from Malaya, temporarily based in Japan, which flew twelve-hour patrols off the Korean coast.

These boats, though fifteen years old in design now, are still doing good work in mine-spotting and anti-submarine patrols and in strikes against enemy shipping. The Americans, who also regarded boats as a lost cause before the Korean

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war, have now revised their opinions in the light of war-time lessons and placed an order for Mariners.

It is to be hoped that the R.A.F. will follow the same line of argument.

H.P. 88. PROTOTYPE FLEW 21st JUNE, 1951. CRASHED 26th AUGUST, 1951

This prototype was an example of an aircraft which would certainly never have gone into production, even apart from its tragic crash on a test flight. It was basically a Supermarine Attacker fuselage, fitted with a wing of "scimitar" planform—so far secret. To complete the constructional confusion, the wing was designed by Handley Page and built by Blackburn and General Aircraft. The object of this prototype was to take test readings on the performance of the wing over a wide range of speeds—including, probably, trans-sonic dives.

If flight tests had been successful a wing of this "W" shape might have been constructed for a much larger machine.

CONCLUSION

A prototype may be a prelude to production, merely a single research type or an aircraft hopefully produced in expectation of an order. The British aircraft industry has a crop of each kind.

In the expansion of air power now taking place in the west, many of these prototypes, in their present or similar form, will go into production for the fighting services.

But alongside the steady flow of production there are constantly, in the workshops and on the drawing-boards, and in the minds of designers, a host of new aircraft which make the latest flying machine already obsolescent.

ECHOES FROM AIR/SEA RESCUE SCHOOL!

"Well, don't just stand there—rescue us, or something!"

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[Photo: P.A.-Reuter

The Canadian Light Fleet Carrier "Magnificent" on arrival at Glasgow with R.C.A.F. personnel and F-86 Sabre jet aircraft for No. 1 Fighter Wing, R.C.A.F., formed at North Luffenham on 15th November, 1951

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OUR COMMONWEALTH AIR FORCES

ROYAL CANADIAN AIR FORCE

R.C.A.F. FIGHTER WING FORMS IN BRITAIN

ON 15th November, 1951, the Royal Air Force Station at North Luffenham was handed over to the Royal Canadian Air Force. It was a Fighter Station during the Second World War and of recent years was under Flying Training Command.

It is here that No. 1 Fighter Wing of the R.C.A.F. is establishing the first all-Canadian station in Britain since June, 1946, and the formation of this Fighter Wing is a sign of the increasing part that the R.C.A.F. is going to take, not only in the defence of these islands, but within the framework of the defence forces of the North Atlantic Treaty Organization. Mr. Wilgress, High Commissioner for Canada, emphasized this at the ceremony at North Luffenham on 15th November, 1951, when he said: "Canadians intend to carry out the obligations which we have assumed under the North Atlantic Treaty Organization. It is in an important stage in the fulfilment of these obligations that we are participating today. . . . This is a sign that we recognize once more the need to be fully prepared to defend ourselves. It is for the defence, not only of Britain, but of the whole North Atlantic community that No. 1 Fighter Wing of the R.C.A.F. is to take control of this station."

North Luffenham is the first of a number of stations on this side of the Atlantic to pass to R.C.A.F. control. Later, bases are to be provided from which Canadian airmen will operate as an integral part of the forces under the command of General Eisenhower.

Air Chief Marshal Sir Ralph Cochrane, Vice-Chief of the Air Staff, said: "The defence of these islands is vital to all of us. It is with feelings of deep pleasure that we have watched the arrival of this Royal Canadian Air Force Wing."

The High Commissioner and Sir Ralph Cochrane inspected two guards of honour, one of fifty R.C.A.F. airmen under the command of Flight Lieutenant D. T. Bain, and another of seventy-five R.C.A.F. airmen under the command of Wing Commander Spruston; both of these officers from Vancouver. They also inspected the Royal Air Force guard of honour, comprised of a similar number of airmen, commanded by Wing Commander L. G. Schwab.

Group Captain R. A. Ramsay Rae, O.B.E., the outgoing Station Commander, then handed over North Luffenham to its new Commander, Group Captain E. B. Hale, D.F.C., of Hamilton, Ontario.

On the day prior to this ceremony, the Canadian light fleet carrier H.M.C.S. *Magnificent* (14,000 tons) arrived at Glasgow with the R.C.A.F. personnel of No. 410 Squadron and their aircraft (Sabre jet fighters) aboard. This is the first

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of the Canadian Fighter Wing's squadrons, which will be joined shortly by No. 441 Squadron of the R.C.A.F., the third squadron arriving later in the year. The two first-mentioned squadrons were located previously at Dorval, P.Q., and in the summer of 1950 were visited by the British Secretary of State for Air, who was accompanied by Air Chief Marshal Sir Leslie Hollinghurst, the Air Member for Personnel, Royal Air Force.

The new Station Commander's Chief Operations Officer is Wing Commander Robert T. P. Davidson, D.F.C., who recently commanded No. 421 Squadron, R.C.A.F., which, from January until its recent return to Canada, had been stationed at the Royal Air Force Station, Odiham. His Chief Administrative Officer is Squadron Leader T. H. Spear, who for the past four years has been filling a similar appointment at the R.C.A.F. Station, Rockcliffe.

No. 410 is the first R.C.A.F. fighter squadron to go overseas with Canadian-built aircraft (the F.86 Sabres), the American counterparts of which have been doing such excellent work in Korea. With these aircraft, No. 1 R.C.A.F. Fighter Wing will carry out operational training with the Royal Air Force, and will form part of the air division which the R.C.A.F. will establish overseas to operate as part of the integrated force under General Eisenhower.

On 15th November, 1951, the Secretary of State for Air, Lord De L'Isle and Dudley, V.C., sent the following message of greeting to the Canadian High Commissioner, for transmission to all ranks of the R.C.A.F., at the time of their taking over their new Fighter Wing station at North Luffenham:

"It gives me great pleasure to send this message of greeting to all ranks of the Royal Canadian Air Force who are today taking over the station at North Luffenham from the R.A.F. The F.86 Squadrons of the R.C.A.F. will be a powerful addition to the strength of the Air Forces of the North Atlantic Treaty Powers in Western Europe, and your presence in the United Kingdom expresses the determination of the Canadian Government and people to support our common ideals.

"I know that you can count on the good will of the British people and the closest co-operation of the Royal Air Force during your stay in this country.

"I wish you all good fortune."

MORE FIGHTER SQUADRONS FOR R.C.A.F.

At the close of 1951, another jet fighter squadron was added to the R.C.A.F. The new squadron, No. 430, equipped with the Canadian-built F.86E. Sabre jet fighters, was formed at North Bay, Ontario, and a war-time R.C.A.F. fighter pilot, Squadron Leader J. F. Edwards, D.F.C., D.F.M., was appointed as its Commanding Officer. No. 430 Squadron was originally formed at Hartford Bridge, England, in 1943, under the command of Wing Commander E. H. Moncrieff, A.F.C., and trained at Dunsfold, Surrey, beginning operations in June, 1943.

Equipped first with Mustangs, this squadron carried out low-flying attacks against ground targets and made photographic and visual reconnaissances of the enemy-held coast prior to D Day. In June, 1944, 430 Squadron moved to the Continent where, moving from airfield to airfield, it advanced with the victorious armies across Northern France into Belgium and the Netherlands. In late 1944 it was re-equipped with Spitfires and continued its good work, finally reaching Luneburg on VE Day, where it remained until disbandment on 7th August, 1945.

This new fighter squadron followed soon after the formation of No. 413 (originally equipped with Vampire jets and to be re-equipped with CF-100 Canuck all-weather fighters), and No. 439 equipped with F.86 Sabres.

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ROYAL AUSTRALIAN AIR FORCE

R.A.A.F. METEORS CAN TAKE IT

THE robustly built Meteor jet aircraft at present in operation with the Royal Australian Air Force's No. 77 Squadron in Korea can take terrific punishment and still remain airborne and manœuvrable. Its simplicity of design also allows for speedy repair of damaged aircraft.

Its ruggedness has been well demonstrated recently. In a tangle with Communist jets in which the Australian jets were overwhelmingly outnumbered, one Meteor was badly shot up. A hole was shot in one aileron large enough for a man to crawl through and an entire aileron was rendered ineffective. Shrapnel pierced the mainplane. The internal structure of one wing was damaged. The fuselage was holed, the main fuel tank pierced, and the radio compass shot away. The pilot flew the aircraft safely back to base and the only fault he had to report of its performance was that it flew slightly one wing low.

An aeronautical engineer who saw the plane when it landed said that, judging by the appearance it should have been a complete write-off. Three repair men had the aircraft airborne again in twelve hours.

In another tangle, in which the Royal Australian Air Force jets were outnumbered by two to one by the MIGs, a second Meteor was extensively damaged. A shell tore through the tailplane and exploded behind the port engine nacelle, tearing away part of the port flap. Shrapnel damaged the port wing, holed the fuselage, damaged the main fuel tank, and penetrated the engine nacelle. Another shell on the starboard side carried away part of an aileron. The pilot of this aircraft also managed to bring it safely back to base.

"SABRE" PRODUCTION

Bulk orders for airframe components, in addition to a complete range of jigs and tools, have been placed with North American Aviation to offset the delay in the Commonwealth Aircraft Corporation's Avon-powered F.86E Sabre production programme, caused by indecision in the final choice of aircraft for this programme.

It will be recalled that the Australian Government's first choice was the Hawker P.1081. The ordering of airframe components will turn C.A.C.'s task into one largely of assembly, except that considerable modification will be needed to take the Avon axial jet in place of the General Electric J.24A.

Estimated saving in time through the decision to buy components is as much as two years and, with the programme actually in operation in December, 1951, it is forecast that the Royal Australian Air Force will take delivery of its first Sabres some time in 1953.

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GLIDER EXPERT IN AUSTRALIA

Edmund Schneider, reputed to have started the world's first glider factory, has arrived in Australia to start a glider factory in Victoria.

T. G. Iggulden, Secretary of the Australian Glider Federation, which is responsible for Schneider's arrival, said that this was "the best news Australian gliding enthusiasts have ever heard."

VICTORIAN AVIATION IDENTITY PASSES

The man who serviced Sir Charles Kingsford Smith's aircraft, and made a name for himself in Australia's early aviation history, has died suddenly at Essendon, Victoria. He was Mr. James Hart, whom everyone knew as "Bob" Hart.

In the First World War he was one of the first British Regular soldiers to be transferred to the Royal Flying Corps, and was gunner for Hereward de Havilland, brother of the famous Geoffrey.

After the war he came to Australia as an engineer with the Shaw Ross Airline Company, which ran joyrides at Fishermen's Bend, Melbourne. He became the first resident engineer for the Department of Civil Aviation at Essendon and established the Hart Aircraft Service—repairs and maintenance. He was the first licensed ground engineer in Australia.

"Bob" Hart serviced planes for Kingsford Smith when they were flying the first Melbourne-Sydney service.

NEW TEST FIELD FOR JET BOMBERS

A £A3,000,000 test flying centre, where Australian-built Canberra jet bombers will undergo tests, will be built soon at Lara, near Geelong, in Victoria. The scheme will provide for eventual transfer of the Commonwealth Government's aircraft manufacturing plant from Fishermen's Bend, Melbourne, to the new location.

Runways and the first buildings will be completed by December, 1952. The centre will embrace a test flying field and assembly facilities.

The Minister for Defence Production, Mr. E. J. Harrison, announcing the project, said that the work would be spread over five years. Completion of the first section within two years would enable testing at Lara of the first Australian-built jet bomber to come off the line at Fishermen's Bend.

The Minister added: "The new test field will afford ample scope for the ultimate transfer of the whole of the existing Government aircraft manufacturing operations from Fishermen's Bend. It also provides for future expansion." The Fishermen's Bend factories would continue for the present, however. Aircraft would be transferred to Lara for final assembly and test flying.

The present test field at Fishermen's Bend, which had been extensively used since 1937, was now "quite inadequate" to test jet-propelled aircraft. High-speed jet aircraft required long runways, safe over-runs and safe approaches, which the Fishermen's Bend establishments did not afford. Continued use of the present field would be hazardous because of the close proximity of the city of Melbourne and the growth of industry near the field.

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ROYAL NEW ZEALAND AIR FORCE

R.N.Z.A.F.: WITHDRAWAL FROM MALAYA

THE detached flight of No. 41 (Transport) Squadron, Royal New Zealand Air Force, which since September, 1949, has been attached to the Far East Air Force at Changi and Kuala Lumpur, is being withdrawn from Malaya to enable this squadron to replace its war-time Dakotas with Bristol Freighter and Handley-Page Hastings aircraft.

After squadron personnel have converted on to these types and undergone the necessary operational training, crews will be available for return to the Malayan theatre if required. When this issue of THE ROYAL AIR FORCE QUARTERLY went to press, policy had not been disclosed in this respect.

Up to 12th April, 1951, the detached flight was employed mainly on communication duties along the command air routes extending from Ceylon on the west to Hong Kong and Japan on the east and north-east. On 12th April the Dakotas arrived at the airfield of Kuala Lumpur for operations against the Malayan bandits. With Dakotas of the Royal Australian Air Force, also on loan to the Far East Air Force, the flight took over the supply-dropping commitments to ground forces operating throughout Malaya.

INSECTS ENTERING NEW ZEALAND IN OVERSEAS AIRCRAFT

More than 550 types of insects have been identified as a result of research by the Royal New Zealand Air Force into the variety of insects carried aboard aircraft reaching New Zealand from overseas. These insects belong to sixty families and include twenty-eight types of mosquitoes, some of which are known to transmit the organisms causing dengue fever and filariasis in Fiji and other tropical lands of the South-West Pacific.

All the insects collected, however, were either dead or dying from the effects of insecticidal spray. On five occasions, egg batches of a moth belonging to a family which includes many serious agricultural pests were recovered from the outsides of aircraft fuselages. Such occurrences have been noted only twice before in the extensive world literature on the accidental carriage of insects by aircraft.

Since the early stages of the Pacific War, trained orderlies of the Royal New Zealand Air Force have carried out insect control in all military aircraft arriving from overseas. In addition, these orderlies have also carried out insecticidal spraying of civil aircraft arriving from overseas, for the Health Department. The control involves the use of hand-operated, aerosol insecticidal "bombs," and is aimed primarily at safeguarding New Zealand from the accidental introduction of foreign insects transmitting disease organisms.

During 1946, research carried out in Royal New Zealand Air Force aircraft engaged on the New Zealand—Japan flight, and subsequent laboratory investi-

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gations made at the Department of Zoology, Victoria University College, established the fact that mosquitoes are capable of surviving the various vicissitudes of low temperature, low air pressure and vibration encountered during protracted air journeys. Many of the mosquitoes, carried in special cages from New Zealand to Japan and back, lived for several months after the completion of their journey. These facts underline the need for the maintenance of a constant vigil.

After these field and laboratory experiments had been completed, insect collections were made on board a number of aircraft on their arrival from overseas at the Whenuapai and Ohakea air force stations. A paper dealing with these collections, read at the Pacific Science Congress in February, 1948, not only illustrated the efficiency of the control methods in use, but also indicated that these methods result in the killing of a very wide range of insects of agricultural as well as of medical significance.

As a further precaution against the establishment of foreign mosquitoes in New Zealand—in the remote event of these insects eluding the control measures carried out on aircraft—strict mosquito control is maintained within the bounds of Royal New Zealand Air Force Station Whenuapai, the terminal for aircraft arriving from overseas. All pools, which are actual or potential mosquito-breeding places, are regularly sprayed with larvicidal chemicals, and every month specimens of any mosquito larvæ collected at this airport are sent to Air Department for entomological examination. To date, all the larvæ so sent have proved to be those of native mosquitoes, or of species which have been established in New Zealand long before the days of international air transport.

* * *

NEW R.A.F. LIAISON OFFICER

Group Captain W. G. Abrams, R.A.F., has been appointed Senior Air Liaison Officer on the United Kingdom Joint Services Liaison Staff in New Zealand. He succeeds Group Captain M. L. Heath, O.B.E., R.A.F.

Group Captain Abrams trained at R.A.F. College, Cranwell, from 1924 to 1926, and during the Second World War served with Nos. 201 and 209 Squadrons of Coastal Command. Later in the war he was Commanding Officer of several stations of the Royal Air Force.

His most recent appointment before coming to New Zealand was Senior Air Staff Officer, No. 18 Group, Coastal Command, in Scotland.

APRIL NUMBER

Contributors are requested to forward articles and photographs (for illustration) for the April number in time to reach the Editor not later than 15th FEBRUARY, 1952.

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CURRENT EVENTS

Use of the Weather in War. (Speech by the C.A.S.)

IN a speech at the first annual dinner of the Royal Meteorological Society at the Connaught Rooms, London, W.C.1, on 17th October, 1951, Marshal of the Royal Air Force Sir John Slessor, G.C.B., D.S.O., M.C., made some interesting observations on the use of weather in war.

After an amusing description of the early days of meteorology, he said:

"It is since 1939 that there has been the really tremendous advance, especially in the observational side of meteorology—and, of course, it is during the same period that the colossal step forward in the range, speed and carrying capacity of aircraft have made good weather information literally vital to the airman, military or civilian.

"Since 1939 the adoption of radio to telemeter the measurements of the instruments carried by the balloons, and the use of radar tracking of the balloons, enables temperature and wind to be measured regularly, several times daily, at about eight stations in this country and at the two British Weather Ship stations to heights of about 50,000 to 60,000 feet and—anyway on an experimental basis—even to 100,000 feet. In the matter of height the meteorologist is thus still well ahead of the needs of the manned aircraft, and I understand also that in the accurate and systematic measurement of winds at great heights by radar we are also ahead of any other country. Upper wind charts covering a large part of the globe are now available each day, so that the airline operator can assess the headwinds likely to be experienced on almost any projected route. Similarly, the aircraft designer can plan the capacity and performance required in new types of aircraft. Of course, these charts are open to much improvement still, and no doubt that will go on.

"The radar exploration of cumulo-nimbus clouds and of precipitation continues to bring knowledge of much value to the airman, the airframe designer, the designer of protective devices against icing, and so on.

"But if meteorology does much for aviation, the flying man also gives great service to the advance of meteorology. There are numerous observations, for example, on clouds and the physical conditions and processes going on in clouds, which can only be studied from the manned aircraft. The Meteorological Reconnaissance Flights operated by the R.A.F. during the war and since have yielded observations to the forecaster; and for many years we had flights doing daily vertical climbs with great regularity and to the greatest height attainable by fighter aircraft, for observations of cloud and weather. Many of us remember the old Gladiator which was doing that job most effectively long after its normal retiring age. Reports from operational aircraft of cloud base, cloud tops, icing, turbulence or other hazardous phenomena are essential for the day-to-day operation of the meteorological service. Reports from aircraft traversing oceanic or sparsely populated areas are a valuable addition to the synoptic network. The Meteorological Research Flight at Farnborough, for which the R.A.F. supply the aircrews and the Meteorological Office the scientific observers, has rendered unique service to meteorological research. It has brought us new knowledge about the amazingly low humidities in the stratosphere and much information on the physics of cloud and precipitation. . . .

"I do not wish to be controversial, or rush in where angels fear to tread. But we must be careful in this, as in all other fields, to make sure that we take advantage of the lessons learnt from the last war in so far as they may be applicable to the

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[National Defence Photo

Massed bands and R.C.A.F. coronation trumpets during "The Last Post," played at the War Memorial on H.R.H. Princess Elizabeth's arrival in Ottawa

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conditions of a future war. One of these lessons, surely, is that in war weather can and should be used as a weapon of war, and the Meteorological Office should be a fully responsible member of any air operations staff. . . ."

After giving examples of the skilful use of the weather by both the Germans and ourselves in the Second World War, the Chief of the Air Staff concluded:

"We all know meteorology is not an exact science—but nor is war, and meteorology is not the only weapon that can let you down if you have bad luck or use it unintelligently.

"The answer is that in war, as in peace, the airmen and the Met. man must work together as a team. And in any important Headquarters the Senior Met. Officer must not only be a first-class meteorologist. If he is going to be the fully responsible member of the staff that he must be, he must really know the Air Force—must know it by continual contact as a whole-time job over years. He must know the personalities, and he must be able to appreciate all the factors which go to make up an operational plan—the capabilities of aircraft and crews and all the existing facilities for getting aircraft to the target and—perhaps still more—for getting them down in bad weather. Such men do exist, as we proved in the war to the disadvantage of our enemies."

Rock-Climbing Tests for R.A.F. Mountain Rescue Units

Twelve picked members from the nine Royal Air Force Mountain Rescue Units in the United Kingdom recently took part in a twelve-day course of rock-climbing trials in Snowdonia, North Wales, operating from a tented camp in hilly country east of Llanberis.

They carried out a number of severe tests under six experienced R.A.F. instructors, the senior member of whom was Flying Officer N. Mason, officer in charge of the Mountain Rescue Unit at R.A.F. Station, Edzell, Angus, where he is the Station Medical Officer.

The tests were based on a directive from the Chairman of the R.A.F. Mountaineering Association, Wing Commander A. J. M. Smyth, O.B.E., D.F.C. They dealt with several aspects of rescue technique; the management of stretchers under mountainous climbs and descents, selection of suitable routes and the use of both manilla and nylon ropes. They were also designed to improve the qualities of leadership. On completion of the course its members were able to pass on the experience to their own rescue units.

It is hoped to hold a mid-winter course at R.A.F. Station, Kinloss, Scotland, which will possibly include ski-training and will incorporate deep winter rescue technique.

The R.A.F. Mountain Rescue Units first came into being during the last war when the first of such units was formed entirely on a voluntary basis, its object being to render quick assistance to survivors of aircraft which crashed in inaccessible parts of the country. Each of the present nine teams in the R.A.F. consists of an officer in charge and thirty-six men, all of whom are volunteers. A senior N.C.O., a wireless operator, and two drivers and an airman responsible for the maintenance of equipment, give their full time to rescue unit duties; the remainder are all employed on routine station duties unless required in an emergency. They undertake, however, to stand by in their off-duty hours and carry out rescue exercises on week-ends and half-days.

The teams are fully equipped with suitable transport, together with special radio equipment which enables information to be passed as soon as it becomes available and, if necessary, provides direct contact between the teams and searching aircraft.

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Apart from the assistance the teams have given to survivors of crashed aircraft—civilian and military—they have often gone to the aid of hikers and mountaineers in distress.

The teams in the United Kingdom are based at the following R.A.F. stations: Valley (Anglesey), Kinloss (Morayshire), Edzell (Angus), Jurby (Isle of Man), Aldergrove (Northern Ireland), Harpur Hill (Derbyshire), Great Orton (Cumberland), Topcliffe (Yorkshire) and St. Athan (Glamorgan).

Fourth Annual Scottish Festival of Reunion—R.A.F.A.

Representatives of R.A.F.A. branches from many parts of Scotland, together with their families and friends, held a successful Festival of Reunion in the Usher Hall, Edinburgh, on Saturday, 6th October.

[*Photo: Yerbury, Edinburgh*

PADRE "MAC"

The Reverend A. McHardy, C.B., C.B.E., M.C., M.A., D.D., who retired from the R.A.F. on 26th September, 1950, after thirty years' service in the Chaplains' Branch. He is now Area Chaplain, R.A.F.A., Scottish Area, and resident in Edinburgh

The Festival was given under the distinguished patronage of the Lord Provost of Edinburgh and also the Lady Provost. The proceedings commenced with a most impressive memorial service held in the Quadrangle of the City Chambers, and was conducted by Group Captain Reverend A. McHardy, C.B., C.B.E., M.C., D.D. (Retired), Scottish Area Chaplain, R.A.F.A. Wreaths were laid at the Stone of Remembrance by Lord Provost James Miller on behalf of the City of Edinburgh, and Air Vice-Marshal H. T. Lyford, C.B., C.B.E., A.F.C., Senior Air Force Officer Scotland, President, Scottish Area, R.A.F.A., on behalf of the R.A.F.A. in Scotland. Units of the Regular and Auxiliary Air Forces, the A.T.C. Pipe Band and A.T.C. Cadets paraded to the service, which was the first of its kind to be held in the precincts of the City Chambers and was also floodlit—as was the Castle for this occasion.

After the service, the units, together with R.A.F.A. Branch Standards, paraded by way of the principal streets of the City to the Usher Hall for the evening entertainment. The excellent programme, produced by Jack Edwardes, the Association's Production and Entertainments Officer (who also took part) attracted an attendance of over two thousand, and included items by stars of stage, screen, radio and television.

This year's Festival proceeds are to be devoted to providing extra comforts for ex-R.A.F. and ex-W.R.A.F. suffering from tuberculosis in Swiss Sanatoria (many of whom are Scots) and also R.A.F.A. Welfare Services in Scotland.

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First Party of R.A.F. Pilots complete Training in Canada

The first party of R.A.F. pilots trained in Canada since the war, numbering twenty-six, are now back in England. They left for Canada in January last and returned wearing R.A.F. pilots' wings presented to them by the Royal Canadian Air Force for qualifying as pilots on basic aircraft. They are the first products of the bi-lateral scheme between the Canadian and United Kingdom Governments by which pilots and navigators are being trained in Canada to assist the R.A.F.'s expansion programme.

These twenty-six pilot officers all entered the R.A.F. as National Service men and volunteered for flying duties under the scheme which enables National Service entrants to be trained as pilots, navigators and air signallers during their two years of statutory service. On successfully completing their initial training in the first twelve weeks of their service, they are granted probationary commissions as acting pilot officers.

Most of the twenty-six, however, have now entered regular R.A.F. service, some under the special facility which enables a National Service man to take a four-year engagement as a pilot or navigator and to leave the R.A.F. with a gratuity normally of £525, tax free.

Since this party arrived in Canada they have been followed at regular intervals by similar contingents consisting of those on regular engagements and on National Service.

There are now approximately 250 pilots at R.C.A.F. training fields at Gimli (near Winnipeg), Claresholm (Alberta) and Centralia (north of London, Ontario), and a similar number of navigators at Summerside (Prince Edward Island) and Winnipeg.

R.A.F., Middle East, Air-lift

The Chief of Air Staff, Marshal of the Royal Air Force Sir John Slessor, sent the following message to Headquarters, R.A.F. Transport Command, and Headquarters, Middle East Air Force:

"Please give my best congratulations and thanks to all air crews and ground personnel of Transport Command and Middle East Transport Wing who have just completed without a hitch the big movement of troops from the United Kingdom to the Middle East and from other areas in the Middle East to the Canal Zone.

"I know many of them have had to put up with inconvenience and discomfort and separation from their families in the past months. That is all in the game, but it would not have been altogether surprising if the long interference with normal transport operations and training while they were standing by in the Canal Zone had had an adverse effect. The smooth efficiency with which this big troop lift has been done proves that is not so, and reflects the greatest credit on all who took part in it.

"A very good show. Well done."

Middle East Air Force Station produces its own Magazine

A new Royal Air Force station magazine, *Mirage*, to be published quarterly by R.A.F. Station, Kasfareet, in the Suez Canal Zone, has issued its first number. Edited by Flying Officer R. Campbell, with the assistance of a committee of seven airmen, it consists of over fifty pages of printed matter, with illustrations and advertisements. We are sure all our readers will join us in wishing the Editor and his staff every success in their new venture.

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[National Defence Photo

On arrival at Ottawa, H.R.H. Princess Elizabeth is greeted by the Governor-General, Viscount Alexander, as she alights from the Royal train

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R.A.F.V.R. to form Embarkation Flights

Three new units, to be known as embarkation flights, are to be formed in the Royal Air Force Volunteer Reserve to assist the regular Royal Air Force Movement (Embarkation) Units at the ports of London, Southampton and Liverpool.

Flights of six officers and forty airmen or airwomen will be attached to No. 86 Reserve Centre, Hornchurch, Essex; No. 23 Reserve Centre, Titchfield, Hants; and No. 42 Reserve Centre, Fazakerley, near Liverpool.

For training they will go to the regular movement units in the port areas, where they will learn current Service procedure and undertake practical "on the job" work under supervision. All types of surface movement instruction will be given and it is hoped that the R.A.F.V.R. flights will attract recruits from the railway and road transport organizations, as well as from shipping firms and forwarding agents. The flights should be capable of productive work with the minimum of supervision after a few months, and so provide a trained reserve for use in an emergency.

Embarkation units are among the first to feel the impact of the R.A.F. expansion programme, and this, with the arrival in this country of United States and Canadian Air Force units, has meant a considerable increase of work for the three regular R.A.F. movement units at home ports. At Southampton, for example, an average of sixty ships a month are now met for arrivals and departures. Officers and airmen are sometimes engaged all day and night with large drafts.

Recently over 1,000 American troops were disembarked from the United States Naval Ship, *General Stewart*, in sixty-three minutes. This operation, by No. 2 Movements (Embarkation) Unit, Southampton, brought a letter of congratulation from the Commanding General of the 3rd Air Force, U.S.A.F., to the Under-Secretary of State for Air.

New Accommodation for R.A.F. in Gibraltar

Hundreds of R.A.F. men stationed at Gibraltar have now moved into the most up-to-date quarters to be found at any R.A.F. station in the world—the Devil's Tower Mess Club, overlooking the Mediterranean Sea and providing every amenity an airman could wish for.

Airmen's living quarters are of the newest design, four men sharing a large, airy room, cooled in summer by a large electric roof-fan and equipped with an electric heater for the cooler nights. Each man has his own writing bureau, wardrobe and locker, and the rooms are refreshingly decorated in light colours.

Each block has its barber's shop, with a permanent civilian staff, and in the attractive foyer is a well-stocked sweets and tobacco kiosk. The club includes airmen's and corporals' lounges, reading and writing rooms, and bars.

The airmen's dining hall has received special attention. The rows of highly polished tables are laid with cutlery before each meal, and the airmen serve themselves on the cafeteria principle from chromium-plated serving counters. Tall windows overlook the sea.

Near by, neat blocks of flats are rising on the shores of the Mediterranean to house R.A.F. families. The first block is now complete and the first families are settling in. Gay striped awnings over the balconies add touches of bright colour to the cream walls. Pleasing features of the interiors are the high ceilings, the cheery furnishing schemes, and the ultra-modern kitchens.

Improved Amenities for R.A.F. in Malta

R.A.F. Station, Luqa, in Malta—already a self-contained Middle East Air Force "town"—is making its living conditions even better.

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Six blocks of flats are planned for officers and their families, while the brick building which is to be the permanent Officers' Mess is already taking shape. Approval has been given for a school for 400 children.

A cinema and two newly completed sports grounds cater for entertainment and recreation on the station.

A nursery school for the two-and-a-half and five-year-olds is now an established amenity for Malta's R.A.F. wives.

"Know Your Ally!"

In our series, "Know Your Ally!", published in the July, 1950, number of THE ROYAL AIR FORCE QUARTERLY, Major O. T. Mehn-Andersen, D.F.C., gave us an up-to-date account of the Royal Norwegian Air Force. It will be of interest to our readers to know that there has recently been a change in command. The new Norwegian Air Commander-in-Chief is Colonel Finn Lambrechts.

World Record by U.S. Rocket

A new world's record for single-stage rockets was set recently at White Sands Proving Ground, New Mexico, when a Martin Viking reached 135 miles above the earth's surface. At the fastest point in its flight it reached a speed of 4,100 miles per hour. The slim, 48-foot pencil, used in research work on cosmic rays and other natural phenomena of the strobosphere, was again equipped with Telemetering equipment to radio back to earth data of speed, temperature, ray counts and other information which will be studied by the scientists. The previous record was 114 miles by the German V2 rocket.

The First Pilotless Bomber Squadron

At the end of 1951 the U.S. Department of Defense released the information that the U.S.A.F. were forming the first Pilotless Bomber Squadron, at the Missile Test Center, Cocoa, Fla. It will be the first operational unit of its kind and will be equipped initially with the Matador B-61 pilotless bomber, now in production by the Glenn L. Martin Company of Baltimore, Maryland. The squadron will first be supervised by a wing of the Air Research and Development Command. Later it will be made combat-ready by extensive unit training under the supervision of the Tactical Air Command, U.S.A.F.

New Radio Navigation Aid

British test pilots are using a new radio navigation aid which ensures rapid landings in case of emergency—a direction-finder giving them almost instantaneously a course to fly to bring them back over base.

This high-frequency direction-finder, developed by Marconi, is already installed in the control tower of English Electric's Wharton airfield (where the Canberra is tested) and at de Havilland's, Hatfield.

The direction-finder is basically a pointer swinging slowly round a dial marked off in degrees—in appearance rather like a large compass. The pilot merely calls up the control tower on his radio, asks for a course to steer to get him back to base and then the pointer instantly swings round to the correct figure. The complete equipment is about the size of a television set, and repeater dials can be set up anywhere on the airfield.

The direction-finder is so accurate that de Havilland test pilots have been picked up and brought home to Hatfield from as far away as the Dutch coast and Paris.

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The de Havilland 110

A new class of jet fighter equipped with special radar to counter atom-bomb attacks is being built by British designers for the Royal Air Force. The first, the de Havilland 110, made its maiden flight on 26th September, 1951.

The new fighters will be multi-seat machines carrying a pilot and a radar/navigator as well, with special radar equipment in each aircraft. The radar "eye," a combination of the latest electronic navigation and combat aids, will guide the fighter directly on to its target, which appears as a "blip" on the radar screen.

Suction Wings on Porous "Planes"

Aircraft designers, in their continuous search for greater efficiency, are experimenting with wings which have porous-metal surfaces and suck the outside air into the wing during flight. The object is to reduce turbulence caused by skin friction. This will cut down drag and mean more speed and range.

Suction-wing models have already been tested in wind tunnels, and sections of wings have been flown in the air. Full-scale flight tests may not be far off.

Aircraft of the future may have these suction-surfaces, and, if the experts are successful, a plane may fly a quarter as far again on the same amount of fuel.

Periscopes for Air Navigators

Astrodomes—the plastic dome in which the navigator hangs his sextant—will no longer be fitted to the latest aircraft. Instead there will be a device like a submarine periscope in the top of the fuselage, with a periscopic sextant which clamps into it. The navigator will put the periscope up when he wants to take the angle of the sun or a star.

One of the reasons for abandoning the astrodome is the drag caused by its sticking up in the airflow and spoiling smooth streamlining—to streamline the astrodome would have caused refraction of the plastic and would have "bent" the angle taken on the sextant—and so upset the navigator's calculations.

Another reason was the possibility of damage to an astrodome in a high-altitude pressurized aircraft.

To overcome these difficulties, pressurized aircraft are being fitted with periscopic automatic electrically operated sextants. The sextant has a periscope tube which can be raised or retracted like a periscope on a submarine.

The tube slides through a special hatch in the fuselage which keeps the atmosphere inside the plane sealed off all the time.

In the top of the tube is a special prism through which the navigator sights the sun, moon or star. Because the outside temperature may be below zero, the "window" in the tube is processed so that it can be electrically heated—otherwise it would mist or ice-up.

R.A.F., ADEN.—All ranks who served in Aden and outstations, 1939-45, second reunion to be held in London, 26th January, 1952. Details from W. Brackenbury, 3a, Rowan Road, London, S.W.16.

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[Photo: Gale & Polden Ltd., Aldershot

Flight Lieutenant L. S. Lumsdaine, winner of the Individual Championship in the International Military Air Pentathlon at Namur, near Brussels, in 1951, riding in the Modern Pentathlon at Aldershot on 25th September, 1951

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SPORT IN THE R.A.F.

REVIEW OF ACHIEVEMENTS IN 1951

INTERNATIONAL MILITARY AIR PENTATHLON

IN the last issue (October Number) of this Journal we included a brief summary of this event with some of the results. The 1951 International Military Air Pentathlon was held at Namur in July. Britain, Belgium, France and Holland entered two teams each, and Italy and Switzerland were represented by one team each.

Each member of the team has to be capable of competing against representatives of other nations over a wide range of sport and general service training subjects, as all competitors are required to take part in five events, fencing, basket-ball, pistol shooting, swimming, an evasion exercise and an air rally.

The air rally entails flying over a set course with the object of arriving back at a set time, according to the speed of the aircraft. Points were also given for the type of photograph taken of the turning points, flying over or as close as possible to a V.H.F. Homer and beating up and reporting a mobile column.

The British teams were captained by Squadron Leader G. A. Podevin, of No. 1 Parachute School, Abingdon, who, with Flight Lieutenant L. S. Lumsdaine, of Headquarters, B.A.F.O. (Germany), formed the "A" team. The "B" team was Squadron Leader W. Allsopp, of Headquarters, Fighter Command, and Flight Lieutenant D. Oxborrow, of the School of Physical Training, Cosford.

The result of the Pentathlon Competition was: 1, France; 2, Britain; 3, Holland. (The British team lost a point to France in failing to locate the mobile column in the air rally.)

The individual championship was won for Britain by Flight Lieutenant L. S. Lumsdaine, who also won the swimming championship, the individual winner of the pistol championship being Squadron Leader G. A. Podevin. Earlier results of the British team were: 1948, second; 1949, first; 1950, third.

ATHLETICS

In the Inter-Services Athletic Championships held at Portsmouth on 22nd July, 1951, the Royal Air Force were the winning side with 54 points. Second came the Army with 50 points, and third the Royal Navy with 34 points.

* * *

At the Royal Air Force Inter-Command and Individual Championships held at the Royal Air Force Stadium, Uxbridge, in June, Air Marshal Sir Hugh S. Walmsley took the salute of the march past of the athletes selected to represent their respective Commands. The meeting was a great success, five new individual records being set up.

Flight Lieutenant A. C. Guest set up a new time for the 880 yards in 1 min. 56 sec.; Sergeant McMinnis created a new time for the three miles, 14 min. 41 sec.; Flight Lieutenant Neville, with a throw of 44 ft. 4 in., created a new record for putting the shot; in the two miles steeplechase, Cpl. Gallagher returned a time of 10 min. 41 sec., knocking twenty seconds off the existing record, and in the one mile event the English International, Corporal Pirie, created a new record with 4 min. 15.8 sec.

Technical Training Command won the Royal Air Force Inter-Command Trophy with 113½ points.

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INTER-SERVICES SWIMMING CHAMPIONSHIPS
Aircraftman J. Wardrop (Scottish International and 1948 Great Britain Olympic Games representative) receiving his medal for the 100 yards free-style event from Lieutenant-General Sir Neville Brownjohn

Aircraftwomen Poole receiving her medal, for the 66⅔ yards breast-stroke event, from Lieutenant-General Sir Neville Brownjohn. In the front row, from right to left, are Earl Mountbatten of Burma, Air Chief Marshal Sir Leslie N. Hollinghurst and Major-General C. M. Dowse

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SWIMMING

The accomplishments of the Royal Air Force in the air are well known, but their prowess in the water in 1951 is also something to be proud of.

Under the guidance of the Chairman of the Royal Air Force Swimming Association, Air Commodore J. Marson, C.B.E., Air Officer Commanding No. 42 Group, the Air Force team has won one success after another.

Early in the season matches were arranged with the leading clubs in the London area. Included in the Royal Air Force team were four internationals, Aircraftmen R. Wardrop and J. Wardrop, the 1948 Olympic Games representatives, who, incidentally, are twins, and Aircraftmen R. Legg and R. Burns. The Wardrops and Burns are Scottish internationals, and Legg an English international.

* * *

In the Inter-Services Championships, which were again held in the Eltham Baths, London, the Royal Air Force became the 1951 champions by scoring 98 points, against the Army's 68 and the Royal Navy's 34 points.

In this year's championships the Royal Air Force created a record that cannot be broken: they finished first and second in every swimming and diving event. Although the team included the four internationals mentioned above, it was team spirit that was the deciding factor, and no amount of praise can be too much for the 1951 Royal Air Force representative swimming team.

The Women's Services trophy was once again won by the W.R.N.S. with 69 points, W.R.A.F. second with 51 points, and W.R.A.C. third with 32 points.

* * *

The Royal Air Force and Women's Royal Air Force Inter-Command and Individual Championships were held at Royal Air Force Station, Cosford, on 28th, 29th and 30th August. Two new records were created: Aircraftman J. Wardrop set new figures for the 100 yards free style, and Aircraftman Burns won the 880 yards free style in 10 min. 40 sec.

Although no new records were set up in the Women's Royal Air Force events, the over-all standard was ahead of the previous championships.

Technical Training Command won both the Royal Air Force and Women's Royal Air Force Inter-Command trophies with 80 points and 38 points respectively.

THE BRITANNIA SHIELD COMPETITION

This international sports tournament between the Services of Allied countries was begun in 1946, to commemorate the comradeship of various nationals taking part in the Battle of Britain. The trophy itself was made from oak from the Guildhall, London, damaged by enemy action. All gate receipts from this competition go to the Britannia Shield Scholarship Fund, administered by the R.A.F. Benevolent Fund.

The 1951 competition was confined to three sports, boxing, shooting and swimming. The boxing contests were held in the Sports Arena, Wembley, the shooting at Bisley and the swimming at the Eltham Baths, London.

Belgium, The Netherlands, United States Forces in Europe, and Britain (represented by the R.A.F.) entered teams for all three events, with Greece competing in the shooting and boxing, and Norway in the shooting only.

The result of this year's competition was as follows: 1, Britain (R.A.F.); 2, U.S.A.; 3, The Netherlands; 4, Belgium; 5, Greece; 6, Norway.

The Royal Air Force won all three events which are summarized on page 83.

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BASEBALL MATCH

The U.S. Air Force versus the R.A.F. Sergeant Perry, of the "Ruislip Rockets" (U.S.A.F.) in action

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SHOOTING	Pts.	SWIMMING	Pts.	BOXING
1. Britain (R.A.F.) ..	551	1. Britain (R.A.F.) ..	35	1. Britain (R.A.F.).
2. U.S.A.	542	2. Belgium	25	2. U.S.A.
3. Belgium	531	3. The Netherlands..	24	3. The Netherlands.
4. Norway	527	4. U.S.A.	16	4. Greece.
5. Greece	525			
6. The Netherlands..	523			

After the finals of the boxing, the high-light of the competition, before a crowd of some 8,500 spectators, The Honourable Julius C. Holmes, the American Minister in London, presented the Britannia Shield to Air Commodore D. W. R. Ryley, C.B.E., the captain of the British team.

Winners of this trophy since its inception have been: 1946, Czechoslovakia; 1947, 1948 and 1949, France; 1950 (boxing only), United States Forces in Europe; 1951, Great Britain (R.A.F.).

CYCLING

Although the Royal Air Force Cycling Association has only been formed three years it has proved to be one of the most popular sports in the Service.

Under the Chairmanship of Group Captain G. A. R. Muschamp and the Secretaryship of Squadron Leader L. C. Woolley, the Association has gone ahead in leaps and bounds.

The 25-mile Time Trial, a tour of Royal Air Force stations, Grass Track Championships, 100-mile Time Trial, 100-kilometre Mass Start Championship, and Inter-Service 50-mile Time Trial and track events have been organized during the season.

The 25-mile Championship was won by Aircraftman Moss, Royal Air Force, Calshot, in 1 hr. 5 min. 28 sec., the winning station in the team event being Royal Air Force, Calshot, in 3 hr. 24 min. 2 sec.

The "Tour of Royal Air Force Stations," over a distance of 355 miles, was won by Aircraftman Tallant, Royal Air Force, Acaster Malbis, in 15 hr. 33 min. 59 sec. No fewer than 97 riders completed the course out of a total of 157. The riders called at Royal Air Force stations Henlow, North Luffenham, Cranwell, Newton, Cosford, Innsworth, Abingdon, and finished at Royal Air Force Station, Halton. Forty-eight station teams of three riders started the race; fifteen complete teams finished. Acaster Malbis were the winning team, their aggregate time being 48 hr. 22 min. 52 sec.

The Hard Track Championship was held at Halesowen, Birmingham, on 22nd August. Technical Training Command won the Inter-Command Challenge Trophy with the Bomber Command team winning the 4,000 metres Team Pursuit Championship.

In the Inter-Services 50-mile Time Trial, the Army took first place, their team's aggregate time being 6 hr. 18 min. 13 sec., the Royal Air Force second place in 6 hr. 18 min. 51 sec., and the Royal Navy third in 6 hr. 42 min. 13 sec.

BASEBALL

The Royal Air Force entered a new sphere of sport this year, or at least a little more publicly than in the days of an earlier attempt to popularize baseball among aircraft apprentices at Halton some years ago. At the request of Air Chief Marshal Sir Philip Joubert de la Ferte, Appeals Director for the Soldiers', Sailors' and Airmen's Families Association, on 22nd August, 1951, the R.A.F. fielded a baseball team against the crack United States Air Force team, the "Ruislip Rockets," at the White City Stadium before a crowd of about 8,000

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spectators. In the team of 20 finally selected, nine were provided from members of the Royal Canadian Air Force serving in the United Kingdom. The result of the match was a victory for the American team by 12 runs to the 4 made by the Royal Air Force.

BOXING

In the early autumn of 1951 Air Commodore H. A. Constantine, Director of Intelligence (Operations), was appointed as the new Chairman of the R.A.F. Boxing Association. A full programme was arranged for the R.A.F. team, which began with the annual fixture against the French Air Force at Pau.

The R.A.F. competitions started with the eliminating bouts in the Lord Wakefield Championships, the junior and senior classes at Henlow on 23rd October, and those for officers at Honington on 2nd November, 1951. These contests were shortly followed by the Inter-Command matches beginning on 8th November, with the finals in December, 1951.

The Royal Air Force Individual Championships are being held at the R.A.F. Station, Hullavington, on 19th and 20th March, 1952.

The 1951-52 Imperial Services Boxing Championships will be held under the auspices of the Army Boxing Association at Aldershot on 8th to 10th April, 1952.

ASSOCIATION FOOTBALL

The support received from stations to the Royal Air Force Football Association for the 1951-52 season again proves that Association football is the most popular game played by all ranks in the Service.

In the Junior Cup Competition, which is open to all units below a strength of 500 personnel, 115 units have submitted an entry. In the Open Challenge Cup Competition, commonly known as the "Senior Cup," some 113 stations are competing.

Seven representative matches in addition to the two Inter-Services games have been arranged for the Royal Air Force team. The Inter-Service match against the Army will be played at Wolverhampton on 19th March, and the game against the Royal Navy at Reading on 26th March.

The new Chairman of the Royal Air Force Football Association is Air Vice-Marshal W. J. Seward, C.B., C.B.E., Air Officer Commanding, No. 61 Group.

R.A.F. WINTER SPORTS ASSOCIATION'S HOLIDAY SCHEME

The R.A.F. Winter Sports Association has arranged a scheme for 18-day winter sports holidays at Chamonix, which may be taken in one of six periods. The charge, including fares, hotel accommodation, meals, sporting facilities and the hire of sports equipment, will vary from £41 to £34 according to the type of hotel accommodation required. A special rate of £25 10s. is available for officer cadets, aircraft apprentices and boy entrants.

The next periods are: 2nd to 19th January, 16th January to 2nd February, 30th January to 16th February, 13th February to 1st March, 27th February to 15th March.

The first party left for Chamonix on 19th December, 1951, and will be back in this country on 6th January—no doubt with many amusing stories of their experiences.

The R.A.F. ski-ing championships will be held during the period 30th January to 16th February.

Air Vice-Marshal A. P. Ledger has accepted the office of president of the

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R.A.F. Winter Sports Association in place of Air Marshal Sir Robert M. Foster, who is leaving the United Kingdom next month to take up the appointment of Commander-in-Chief of the Second Tactical Air Force in Germany.

THE ROYAL AIR FORCE EQUITATION ASSOCIATION

As mentioned in our previous issue, the Annual Gymkhana of the Royal Air Force Equitation Association was held at Halton on Wednesday, 19th September, 1951. It was favoured with fine weather and attended by many Commanders-in-Chief and other senior officers, and a representative number of members of the Association. The successful competitors included officer, airman and airwoman representatives from Bomber, Fighter, Coastal and Technical Training Commands.

The President's Cup for the Member of the Association who has made the most progress in horsemanship during the past year was presented to Junior Technician Sowden, now stationed at St. Athan.

The Annual General Meeting of the Association was held at the Air Ministry on Friday, 5th October, 1951. At this well-attended meeting the existing committee was re-elected, revised rules were approved and current and future activities discussed. The minutes recorded with appreciation a gift from the Aden Protectorate Levies Riding Club of two pairs of leather chaps. These chaps are already proving a boon to members who are not in possession of riding kit. Copies of the minutes of the meeting and of the revised rules are being sent to all who attended the meeting, and additional copies are available for members who may wish to apply for them.

[Air Ministry Photo

R.A.F. EQUITATION ASSOCIATION

Air Marshal Sir Aubrey Ellwood, K.C.B., D.S.C., President of the Association, congratulating J./T. Sowden on winning the cup for the member who has made the most outstanding progress in horsemanship during 1951

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GENERAL SPORTS FIXTURES, 1952

JANUARY

5 Rugby: R.A.F. *v.* Swansea, at Swansea.
5 Squash: W.R.A.F. *v.* St. George's Hill, at Weybridge.
5 Rugby: England *v.* South Africa, at Twickenham.
10 Boxing: R.A.F. *v.* Scottish A.B.A. team, in Glasgow.
12 Hockey: R.A.F. *v.* Mid-Surrey, at Vine Lane, Uxbridge.
12 Rugby: R.A.F. *v.* Birkenhead Park, at Birkenhead.
12 Squash: W.R.A.F. *v.* Bedford S.R.C., at Bedford.
14 Netball: W.R.A.F. *v.* Civil Service, in London.
16 Association Football: R.A.F. *v.* London University, at Uxbridge.
17 Rugby: R.A.F. *v.* British Police, at Leicester.
18 Boxing: R.A.F. Officers *v.* Army Officers.
19 Rugby: England *v.* Wales, at Twickenham.
19 Squash: W.R.A.F. *v.* Hampstead S.R.C., at Uxbridge.
23 Squash: R.A.F. *v.* Berkshire, at Uxbridge.
23 Hockey: R.A.F. *v.* Cambridge University, at Cambridge.
24 Rugby: R.A.F. *v.* Leicester, at Leicester.
26 Hockey: R.A.F. *v.* Surbiton, at Surbiton.
30 Association Football: R.A.F. *v.* Oxford University, at Oxford.
31 Squash: Inter-Services Women's Tournament, at Bracknell.

FEBRUARY

1 Squash: Inter-Services Triangular Tournament (Women), at Bracknell.
2 Squash: R.A.F. *v.* Dulwich S.R.C., at Bracknell.
2 Hockey: R.A.F. *v.* Southgate, at Vine Lane, Uxbridge.
2 Rugby: R.A.F. *v.* Waterloo, at Waterloo.
2 Netball: W.R.A.F. *v.* London Business Houses, in London.
3 Hockey: R.A.F. *v.* Hawks, at Byfleet.
6 Rugby: R.A.F. *v.* Cambridge University, at Cambridge.
6 Hockey: R.A.F. *v.* Oxford University, at Oxford.
8 Boxing: R.A.F. Officers *v.* Cambridge University.
9 Squash: R.A.F. *v.* Ganders, at Cambridge.
9 Rugby: England *v.* Ireland, at Twickenham.
11 Small Arms: Inter-Services Tournament (Women).
14 Association Football: R.A.F. *v.* Cambridge University, at Cambridge.
14 Squash: W.R.A.F. Inter-Command Finals, at Bracknell.
16 Hockey: R.A.F. *v.* Old Kingstonians, at Kingston.
16 Rugby: R.A.F. *v.* Royal Navy, at Twickenham.
22 Squash: R.A.F. *v.* Priory (Blackheath), at Uxbridge.
22 Boxing: R.A.F. Officers *v.* London University.
23 Hockey: R.A.F. *v.* Tulse Hill, at Vine Lane, Uxbridge.
23 Rugby: R.A.F. *v.* Coventry, at Coventry.
25 Badminton: Inter-Services Tournament (Women).
27 Rugby: R.A.F. *v.* Oxford University, at Oxford.
29 Squash: R.A.F. *v.* Surbiton L.T.C., at Surbiton.

MARCH

1 Rugby: R.A.F. *v.* Bedford, at Bedford.
1 Netball: W.R.A.F. *v.* Bedford, at Bedford.
5 Association Football: Royal Navy *v.* Army, at Portsmouth.
5 Hockey: W.R.A.F. *v.* W.R.A.C., at R.A.F., Halton.
6 Hockey: W.R.A.C. *v.* W.R.N.S., at Aldershot.
7 Hockey: W.R.N.S. *v.* W.R.A.F., at Portsmouth.
8 Hockey: R.A.F. *v.* Wimbledon, at Vine Lane, Uxbridge.
8 Rugby: R.A.F. *v.* Gloucester, at Gloucester.
9 Hockey: R.A.F. *v.* Buckinghamshire County, at Slough.
12 Hockey: R.A.F. *v.* Civil Service, at Chiswick.
12 Rugby: R.A.F. *v.* Civil Service, at R.A.F., Halton.
15 Rugby: Scotland *v.* England, at Murrayfield.
19 Association Football: R.A.F. *v.* Army, at Wolverhampton.
19/20 Boxing: R.A.F. Individual Championships, R.A.F., Hullavington.

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BOOK REVIEWS

The Dam Busters. By Paul Brickhill. With a Foreword by Marshal of the Royal Air Force The Lord Tedder, G.C.B. Published by Evans. 15s.

The exploits of 617 Squadron are unsurpassed in the annals of war as examples of human courage and skill supported by inventive genius. To breach the Mohne Dam required a weapon of extraordinary power and ballistic performance. For this weapon to be effective it had to be dropped with hitherto undreamt of precision from a height of no more and no less than 60 feet. This had to be done at night in the face of highly organized enemy opposition both from the air and the ground. It is safe to say that no other air force in the world could in 1943 have attempted the task, and that no other squadron in the R.A.F. could have accomplished it. 617 Squadron did the deed, and such was the spirit of the crews that one pilot, an American as it happened, was willing, but fortunately did not have to, go without a parachute. Yet, though this was the first, and is still the most celebrated, of 617 Squadron's feats of war it was not necessarily the most daring. The endurance, skill and courage of the crews who burst the Mohne Dam was repeated over and over again by the surviving and other crews. 617 Squadron, formed hastily and rapidly trained with improvised equipment for this particular operation, was not a flash in the pan. Its effort in terms of gallantry and effectiveness was sustained to the end.

In *The Dam Busters* Mr. Brickhill tells this superb story with a sense of squadron atmosphere which one would have regarded as scarcely possible for him with his entirely different, but none the less remarkable, war experience. The reader is simply shown how these things were done through the eyes of the men who did them, and at times through the eyes of the designer who gave them the weapons. The blend of humour and pathos which was the essence of squadron life is brilliantly woven through the book, as it was through the war. On the lighter side many of the anecdotes such as the bogus letter to *The Times* deploring the fate of the Mohne cygnets, the unfortunate experience of the Group Captain under the upstairs windows of the Mess, the hazards of long-distance telephone calls, which apparently extended even to the Commander-in-Chief, and the untimely arrival of the Group Savings Officer when 617 Squadron was about to embark on a different sort of campaign, are surely among the best war humour yet printed.

On the other side Mr. Brickhill tells without verbiage or exaggeration of the appalling demands which were made on life and nerve. He tells of many deeds, whose gallantry, if ever equalled, has never been excelled. He shows how the crews of 617 Squadron even after they had died, as he puts it, a "statistical death" many times over still went on experimenting with new techniques and weapons at the peril of their lives, and to the great destruction of many enemy targets. Incidentally, the inference on page 213 is that Flight Lieutenant William Reid, V.C., lost his life with the squadron and it is a happy duty to observe that this gallant officer in fact survived the war.

It is not the province of this book to attempt any critical analysis of Air Staff policy in the conduct of the bombing offensive. It is essentially a study of squadron character. Nevertheless there are times when Mr. Brickhill affords the reader an occasional glimpse of high quarters, especially in the opening chapters when he is viewing events through Mr. B. N. Wallis's eyes. It is here that the author seems to have been drawn by the temptation to poke fun a little farther than he ought to have gone. There is certainly much truth in what he says, but, after all, Mr. Wallis was not the only man who had his eyes on the Mohne Dam, and whatever the merits of the "Victory" bomber the Air Staff had at least called, in very good time, for the four-engine specification which ultimately gave us the Lancaster. In the matter of bombs, the Air Staff record may be less impressive, but to suggest that the 500-lb. bomb commanded undivided official allegiance is to go too far.

These matters do not, however, lie at the heart of the book, and the R.A.F. of today and the future should be grateful to Mr. Brickhill for telling the story of 617 Squadron in a way entirely worthy of "the men, living and dead, who did these things."

NOBLE FRANKLAND.

Power and Politics—The Price of Security in the Atomic Age. By Hanson W. Baldwin.

This book records a series of lectures given by the author, the Military Editor of the *New York Times*, in Southern California, and in this fact lies the key to much of its interest and value to us. The opinions stated are those of an American talking to Americans; there is no attempt to gloss over the implications of the international situation as they appear to Americans, nor to disguise their particular reactions for the benefit of an international audience. On this side of the Atlantic we may feel that we are eavesdropping

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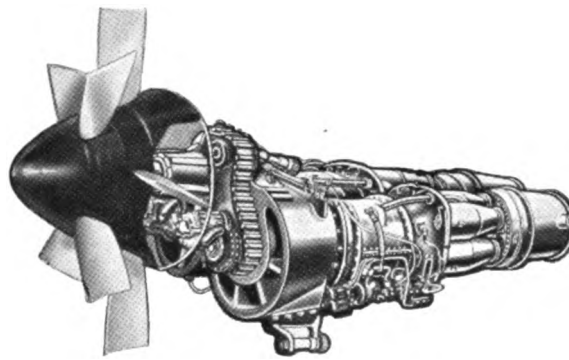

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in hearing the views offered, but their value is greatly enhanced by the frankness and directness with which they were expressed "for home consumption."

Because, however, his approach is essentially national, it must not be thought that the author does not take a broad view of the international situation. On the contrary, he shows that he is fully aware of the danger of a recrudescence of isolationism in the United States, and is at great pains to show that the advance of science have rendered it an obsolete and wholly untenable concept. He stresses that modern weapons, their range, speed and power, have made America's frontiers "live," as the frontiers of European countries have always been live, and aptly shows that, as the advent of the submarine and the aircraft destroyed Britain's reliance on the Channel and North Sea, so the perfection of these weapons and their armament has done the same for America's traditional barriers, the oceans and the ice-cap.

Isolationism is not the only pitfall for American thinkers that is exposed by the author; in three other matters he pointedly and accurately demonstrates the fallacy of some contemporary American ideas. Firstly, he stresses the danger of dependence on economic potential as opposed to forces in the field. Because America can, given time, outbuild all the other munition and armament industries is no cause for complacency; what she now lacks, and must have, is greater "readiness potential," or armed forces ready to take the first shock of war, and forces planned and integrated for that purpose. God has been said to be on the side of the big battalions; there seem no equally valid grounds for assuming that he is also on the side of the big factories.

A second target for criticism is the all-too-common tendency in the United States, as in all democracies, to create our enemies in our own image, to imagine that the actions and reactions of totalitarian peoples and governments are assessable and predictable by the same standards as our own. And, thirdly, the protagonists of a "preventive" war now are convincingly refuted. Finally, while criticizing the outlook of some of his contemporaries, Mr. Baldwin shows that he can also think constructively with his concept of a five-sided, balanced "Total Diplomacy" to meet the present emergency.

All this is not to say that his book is without blemish. We note the occasional appearance, even here, of narrow nationalism, e.g., "the Berlin airlift was a clear-cut victory for the United States," and again, "the problem of Japan basically is to get her off the backs of the United States taxpayers"; of a certain rather typical *naïveté*, "we were prepared after the Italian elections of 1948 to land a task force of Marines in Italy *to show we would not tolerate outside interference*"; and of the American grammatical idiom which sometimes grates on our ears, as in the constantly repeated "gotten" and such phrases as "Western Germany is getting out from under our control."

These are, however, minor defects. Generally the style is sharp, racy, and holds the interest, and the arguments are convincingly evolved and tellingly put over. Any Englishman, civilian or in uniform, who wants to find out how the new weapons and new balance of power have changed the face and the thoughts of the world, and particularly American thinking about that change, will do well to read this book and learn its lessons while he can.

C. N. F-N.

The Exploration of Space. By Arthur C. Clarke. Published by Temple Press Ltd., London. 198 pp. Illustrated. 12s. 6d.

Some of the things in this book are so fantastic that it is easy to condemn them as fiction from the mind of an over-enthusiastic would-be space-traveller. Illustrations showing great man-made bases on the Moon and Mars, for example, are reminiscent of Jules Verne and H. G. Wells, with more than a trace of Buck Rogers. Yet, when one remembers how many of the fantastic machines foreseen by Jules Verne and H. G. Wells are accepted today as part of our everyday world, why should we dismiss as fantasy these glimpses of the future by Mr. Clarke, all of which are based on sound scientific reasoning and knowledge?

Mr. Clarke does not mislead his readers into thinking that the conquest of space will be easy. It has taken hundreds of years and cost thousands of lives to lift ourselves a few miles above the surface of our world; it is unlikely that the problems of flying 240,000 miles to the moon, or 35,000,000 miles to Mars, will be solved overnight or at little cost. Yet, according to Mr. Clarke, our present knowledge and skill are sufficient to build an unmanned survey rocket that could reach or circle the moon, and piloted space-flight will be possible when a suitable engine of high power, possibly atomic, has been developed.

First step will probably be the assembly in space of earth satellites—a development that can hardly be disputed in view of the fact that the U.S. Government has already initiated an active research project to build such satellites for military purposes. But Mr. Clarke looks beyond their terrible military implications to the possibility of using them as mid-

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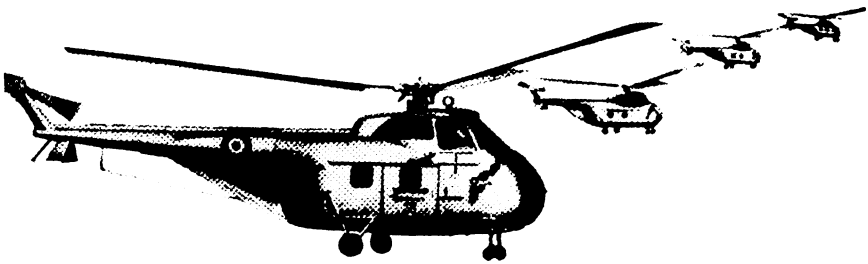

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space refuelling stations for interplanetary rocket-ships—a scheme which would reduce the tremendous power needed to break free from the earth's gravity.

If you are already a space-flight enthusiast, this book will give you a great deal of pleasure and satisfaction. If you are still sceptical, it will answer a lot of your queries. If you know practically nothing of interplanetary flight, it will give you a fine introduction to the greatest adventure still awaiting mankind.

J. W. R. T.

I'll Fly No More. By Ursula Barnett Potter. Published by George Allen & Unwin Ltd. 213 pp. Illustrated. 18s.

This is the diary of a remarkable family—father, mother and three children—whose idea of a holiday is to fly the length and breadth of Africa, across the dark forests of the Congo, the Northern Deserts and between gaps in vast mountain ranges, in a single-engined aeroplane bought after the war from the Lend-Lease authorities.

Mrs. Potter was not just the diarist of these journeys, but also navigator, and seems to have made a good job of both. The result is a modern adventure story that will help to while away many pleasant hours by the fireside this winter. There is plenty of humour, but the author leaves little doubt of the fears and perils of such journeying, or of the lack of courtesy and co-operation that sometimes hampered progress and even endangered their lives. This accounts for the title of her book, and for her husband's comments in a broadcast talk, reproduced as an Appendix:

"You mustn't suppose that I'm a dashing young R.A.F. type who hurtles through the sky in jet fighters. I haven't a handlebar moustache.

"I'm a sober editor and publisher, grey-haired, with three children, and every time I make a long-distance flight I curse myself for a fool and swear I'll never do it again. I said that three years ago after making a flight from South Africa to Europe and back with my wife and two elder children. I said it again last year after crossing the full width of the Congo Forest, through the Mountains of the Moon, the Kivu Volcanoes and the Great Lakes, with one engine. I'm saying it again now after another flight to England. . . ."

But he probably didn't mean it, and we certainly hope not if future flights produce more books like this one.

J. W. R. T.

Brassey's Annual, 1951. Edited by Rear-Admiral H. G. Thursfield. 460 pp. Illustrated. (William Clowes & Son, London; 50s. net.) The 1950 edition of *The Armed Forces Year Book* was reviewed in the January Number, 1951, of THE ROYAL AIR FORCE QUARTERLY.

The new edition, published recently, is larger and again a mine of information for Service personnel. Much of its value lies in the authoritative articles by well-known writers on Service subjects.

As a handbook on the Navy, Army and Air Force, it serves its purpose admirably, as a ready reference on a wide field covering all three Services, it is most useful.

An annual publication, containing such detailed information as appointments held by senior officers, requires keeping up to date by any officer who intends depending upon it for day-to-day use.

This absorbingly interesting book contains authoritative articles on "The Future Pattern of War," "The Structure of Defence," "Soviet and Western Strategy," "The Korean Scene," and "Aircraft Development," as well as considerable information on the Navies, Armies and Air Forces of Foreign Powers.

A. H. S.

Marshal Without Glory. By Ewan Butler and Gordon Young. Published by Hodder & Stoughton. 278 pp. Illustrated. 15s. net.

As the title indicates, no resentment will be aroused in the minds of readers of this biography of Hermann Wilhelm Goering, on the grounds of hero worship, as was apparently caused by the recent book on "Rommel" by Desmond Young.

This is the biography of one who, in Germany for a period at least, was famous and who in other countries was first admired as the apparently fearless if ruthless leader of Richthofen's Geschwader, after the Baron was killed in air combat; and later condemned as no ordinary felon. On the authority of the most august criminal tribunal ever assembled "his guilt was unique in its enormity."

After a somewhat dull beginning, touching briefly upon his parentage and early life,

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interest is aroused by a more detailed account of some commendable qualities in Goering, in his early rise to fame as a fighter pilot in the First World War. This interest increases with the description of the period between wars, when he meets Hitler and devotes himself ardently to National Socialism and takes part in the abortive march on Munich, is wounded and escapes to Sweden. Having passed through his degrading days as a drug addict, during which he spent a period in the "violent ward" of a Swedish lunatic asylum, the biography describes the beginning of his better-known role as "Filibuster," "Flamboyant Showman" and the ruthless seeker of power that he proved to be. Then follows his part in the burning down of the Reichstag, the transformation of Germany into a Police State, with himself as Chief of its Gestapo and benevolent guardian of its excesses. In 1931 he forms the first concentration camps, later to develop into such infamous places as Belsen, Auschivitz and Ravensbrück. No less absorbing is the struggle for power between Goering and Ernst Röhm, ending in the purge known as "The Long Knives," when friends and foes were ruthlessly murdered for the combined interests of Hitler and himself.

The description of his part in the rebuilding of the German Air Force, mainly by the capabilities of General Wilberg, Milch and Wever, and its varying fortunes in the Second World War, are of undoubted interest to Air Force personnel. A sidelight on his character and complete lack of moral sense is depicted by his activities as a collector of "priceless art treasures" from conquered nations. The biographer does not accuse or condemn, but rather reassembles all available information to depict the character and temperament of his subject; which on turning over the last page the reader cannot fail to do. He was indeed a "Marshal Without Glory."

A. H. S.

NEW BOOKS

AERONAUTICS

Flight To-day. (No. 2). (A revised edition of an expert survey of today's rapidly expanding developments in aeronautical science and of their technical application, considered in both their civil and military aspects. An entirely new section has been added to deal with jet propulsion.) By J. L. Nayler, M.A., F.R.Ae.S., F.I.A.S., and E. Ower, B.Sc., A.C.G.I., F.R.Ae.S. (Oxford University Press; 172 pp., fully illustrated; 7s. 6d. net.)

Parachutes. (Devoted entirely to parachutes, based on the experience of the author as leader of the British Parachute Section since its formation in 1942. He traces the history of the parachute from its infancy to the most modern developments, and gives detailed explanations of the aerodynamics of a parachute, factors which influence design and choice of materials, various types of pack and methods of deployment.) By W. D. Brown, M.Sc. (Sir Isaac Pitman & Sons Ltd., London; 322 pp., fully illustrated; 40s. net.)

Aircraft Engines of the World, 1951. (This annual international reference book specializes in describing the latest jet engines and reciprocating engines. Of particular interest at this time are the U.S.S.R. engines.) By Paul H. Wilkinson. (Sir Isaac Pitman & Sons Ltd., London; 324 pp., fully illustrated; 50s. net.

Official Airline Route and Mileage Manual. (Describes the United States certificated airline routes with their restrictions and conditions and the distances between the points of service. It contains over 100 maps.) Issued by the Civil Aeronautics Board, U.S.A., 1762 K. Street, Northwest, Washington, 6, D.C.

ATOMIC ENERGY

Source Book on Atomic Energy. (Prepared under the direction of the Technical Information Service of the Atomic Energy Commission.) By S. Glasstone. (Macmillan, London; 24s.)

POLITICAL

Asia and the West. By M. Zinkin. (Chatto & Windus, London; 15s.)

An Introduction to Politics. By R. H. Soltan. (Longmans, Green & Co., London; 16s.)

The Commonwealth in Asia. (Waynflete Lectures delivered at Oxford University.) By Sir Ivor Jennings. (Clarendon Press, Oxford; 10s. 6d.)

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CONCERNING PERSONNEL

ROYAL AIR FORCE PROMOTIONS AND APPOINTMENTS

Among the promotions and appointments announced by the Air Ministry since the issue of the October, 1951, number of this Journal, are the following:

AIR MINISTRY

Air Marshal Sir Arthur P. M. Sanders, K.B.E., C.B., the Deputy Chief of Air Staff; Member of Air Council (Inter-Service Policy Planning and Co-operation with Commonwealth and Allied Air Forces), has been promoted to the rank of Air Chief Marshal.

Air Commodore H. P. Fraser, C.B.E., A.F.C., as Director of Operations.

Air Commodore D. W. Lane, C.B.E., as Director of Policy (Air Staff).

Group Officer J. L. A. Conan Doyle, O.B.E., as Deputy Director (Personnel) of the Women's Royal Air Force.

IMPERIAL DEFENCE COLLEGE

The following Royal Air Force officers have been selected to attend the 1952 course at the Imperial Defence College:

General Duties Branch: Air Commodore D. H. F. Barnett, D.F.C., A.D.C., Director of Operations (1), Air Ministry; Group Captain C. Broughton, Deputy Director of Organization (1), Air Ministry; Group Captain R. C. M. Collard, D.S.O., D.F.C., Headquarters, Middle East Air Force; Group Captain M. L. Heath, O.B.E., Senior Air Liaison Officer with the United Kingdom Service Liaison Staff in New Zealand; Group Captain W. C. Sheen, D.S.O., O.B.E., Commanding Officer, R.A.F. Station, Binbrook, Lincs; Group Captain E. S. Butler, O.B.E., H.Q., Bomber Command.

[*Air Ministry Photo*

Air Chief Marshal Sir Arthur P. M. Sanders, K.B.E., C.B., Deputy Chief of the Air Staff

Technical Branch: Air Commodore J. D. Baker-Carr, C.B.E., A.F.C., Director of Armament Research Development, Ministry of Supply.

Equipment Branch: Group Captain H. H. Hilliar, C.B.E., Commanding Officer, No. 16 Maintenance Unit.

HOME COMMAND

Air Commodore R. Coats, as Air Officer Commanding No. 62 (Southern) Group.

MAINTENANCE COMMAND

Air Commodore G. W. McAleer, M.B., Ch.B., D.T.M. & H., as Principal Medical Officer, Maintenance Command.

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ROYAL AIR FORCE STAFF COLLEGE (ANDOVER)

Air Commodore W. G. Cheshire, C.B.E., as Commandant (in April, 1952).

RECORD OFFICE

Air Commodore W. E. V. Richards, C.B.E., as Air Officer Commanding, Record Office.

ROYAL AIR FORCE TECHNICAL COLLEGE (HENLOW)

Air Commodore J. G. Franks, C.B.E., as Commandant.

No. 2 R.A.F. SCHOOL OF TECHNICAL TRAINING (COSFORD)

Air Commodore W. L. Freebody, C.B., C.B.E., A.F.C., as Commanding Officer.

MALAYA

Air Vice-Marshal G. H. Mills, C.B., D.F.C., as Air Officer Commanding.

FAR EAST

Air Vice-Marshal J. G. Hawtrey, C.B.E., as S.A.S.O., Far East Air Force.

MIDDLE EAST

Air Commodore G. P. Chamberlain, C.B., O.B.E., to command the Transport Wing, M.E.A.F.

Air Commodore R. K. Hamblin, C.B.E., as A.O.A., No. 205 Group.

GIBRALTAR

Air Commodore C. E. Chilton, C.B., C.B.E., as Air Officer Commanding (in February, 1952).

R.A.F. OFFICER TO BE AUSTRALIA'S CHIEF OF AIR STAFF

The United Kingdom Government have placed at the disposal of the Australian Government the services of Air Vice-Marshal J. D. I. Hardman, C.B., C.B.E., D.F.C., for appointment as Chief of Air Staff, R.A.A.F., in succession to Air Marshal G. Jones, C.B., C.B.E., D.F.C.

Air Vice-Marshal Hardman will serve in acting rank of Air Marshal and will leave the United Kingdom to take up his new appointment at the beginning of January, 1952.

INDIAN AIR FORCE

AIR VICE-MARSHAL G. E. GIBBS TO SUCCEED AIR MARSHAL SIR RONALD IVELAW-CHAPMAN

His Majesty's Government in the United Kingdom have made available to the Government of India the services of Air Vice-Marshal G. E. Gibbs, C.I.E., C.B.E., M.C., for appointment as Chief of Air Staff and Commander-in-Chief of the Indian Air Force, with the acting rank of Air Marshal.

He will succeed Air Marshal Sir Ronald Ivelaw-Chapman, K.B.E., C.B., D.F.C., A.F.C., who has held the appointment since February, 1950.

HONOURS AND AWARDS

Flight Lieutenant John Alan Quinton, D.F.C., the award of the George Cross (posthumous), who saved the life of an A.T.C. cadet after a collision in the air.

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1. **TO STIMULATE INTEREST IN AIR DEFENCE** by publishing authoritative articles likely to appeal to all members of the air forces of the Western Powers; thus encouraging fruitful discussions on a wide range of air matters connected with Defence Forces.

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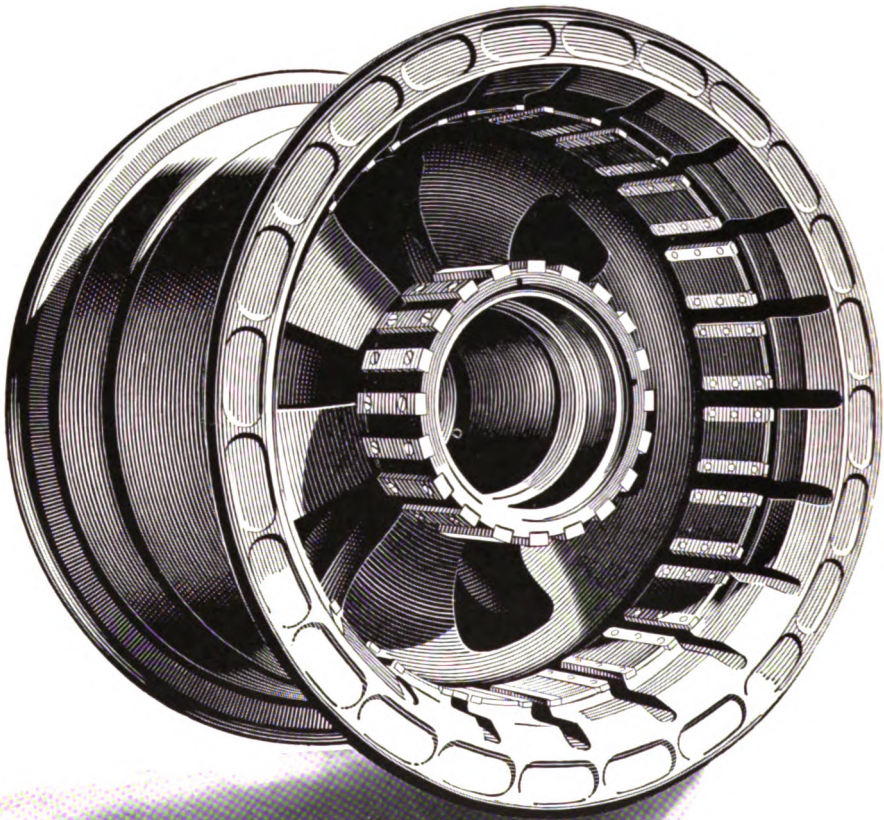

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THE R. A. F. QUARTERLY
AND COMMONWEALTH AIR FORCES
JOURNAL

EDITOR
GROUP CAPTAIN A. H. STRADLING, O.B.E., R.A.F. (RET.)
Assisted by an Air Ministry Advisory Committee of members of the Royal Air Force and Air Forces of the Commonwealth

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EDITOR.

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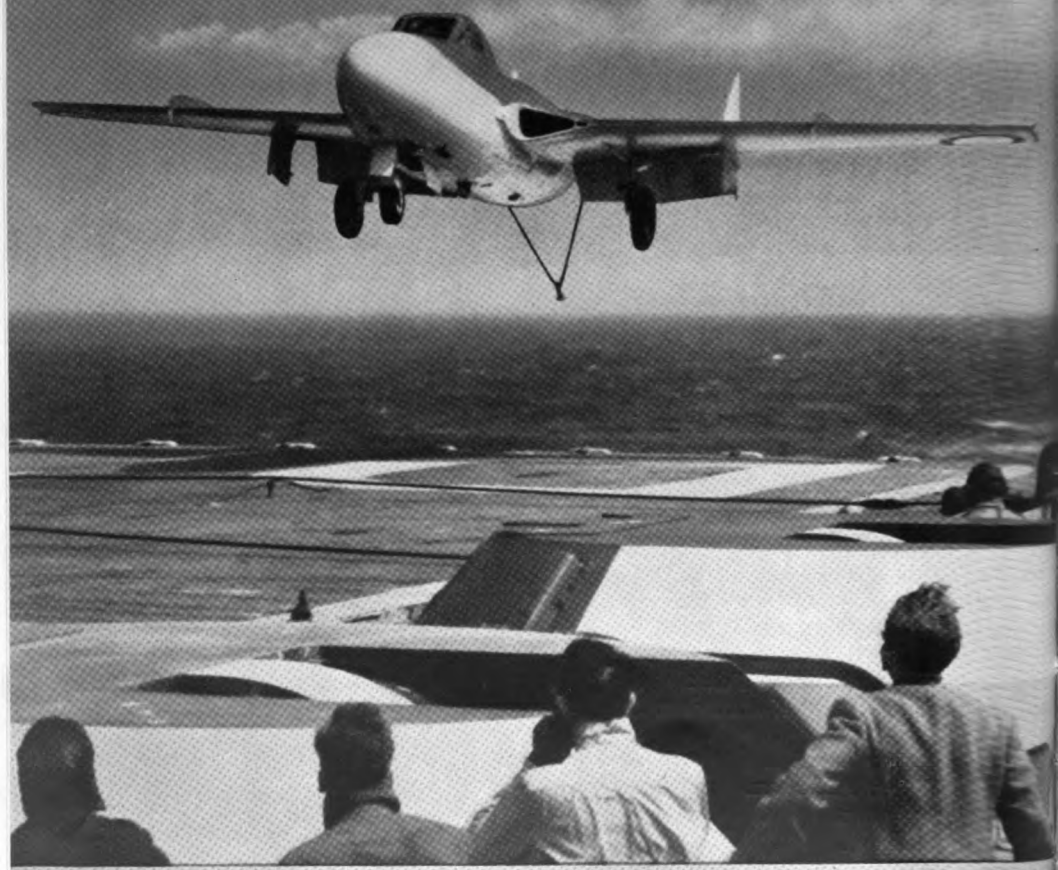

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HIS LATE MAJESTY KING GEORGE VI
MARSHAL OF THE ROYAL AIR FORCE

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HIS LATE MAJESTY KING GEORGE THE SIXTH

WE in the Royal Air Force today, in common with our fellow countrymen, mourn the sudden death of His Late Majesty King George VI, Marshal of the Royal Air Force. We have lost a great Chief.

On the formation of the Royal Air Force on 1st April, 1918, Prince Albert, as he then was, was gazetted as a Captain. He served at Cranwell until August of that year when he assumed duty with the Cadet Wing at St. Leonards. Shortly afterwards he proceeded to France on active service and joined the staff of the Inter-Allied Independent Air Force, a bomber force made up of units drawn from the British, French, Italian and American Air Forces.

I well remember Prince Albert joining the Independent Force at Autigny-la-Tour in 1918, and the great interest in its work which he at once displayed. As staff officer to Major-General J. M. Salmond, now Marshal of the Royal Air Force Sir John Salmond, he entered fully into all the activities of the Headquarters and was, I am glad to think, happy in his tasks there.

In February, 1919, when he was posted to the Home Establishment, his keenness for flying led him to undertake a course of pilot instruction at Croydon. In three months he passed what was then called Category "A," a few days later he successfully passed the necessary air and ground tests and, as a result, was appointed Captain (Aeroplanes) Flying. In August he was gazetted to a permanent commission as a Flight Lieutenant and in November was promoted to the rank of Squadron Leader. At that time, however, owing to the prevailing shortage of aeroplanes and mechanics, considerable restrictions had to be imposed, and Prince Albert's flying, like that of many others, necessarily had to be curtailed.

On 1st May, 1920, when Prince Albert attended the Royal Academy Banquet, a Guard of Honour was provided by the Royal Air Force. This was the first time a Guard of Honour had paraded in the new Royal Air Force uniform. Later, at his marriage in April, 1923, he himself wore the uniform of our

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Service and a Guard of Honour was again provided by the Royal Air Force.

On being created Duke of York in the Birthday Honours of 1920, Prince Albert's active employment with the Royal Air Force ceased, although he was retained on the active list and was shortly afterwards promoted to Group Captain. On ascending the Throne in 1936, he became Marshal of the Royal Air Force. From that time onwards, together with Her Majesty Queen Elizabeth, now the Queen Mother, His Majesty King George VI continued to take a great and lively interest in all things connected with our Service. Often, when I had been abroad, he would send for me to tell him all I had seen of the Royal Air Force and the Dominion Air Forces overseas.

It is given to few men to see in their own lifetime the birth of a great Fighting Service and its rise to maturity. The rise of the Royal Air Force was in no small part due to the personal interest and encouragement of King George VI. He saw it established as a necessary force for the preservation of world peace; he helped it during its early trials and difficulties; he saw it, with the aid of the air forces of our great ally, the United States of America, triumphant and victorious in the struggle to save Britain, the British Commonwealth and the World.

Today the whole of the British Commonwealth, and indeed many nations outside the Commonwealth, acknowledge the value to all of King George's public and private life. We in the Royal Air Force are particularly conscious of the example which he set us. I feel sure that, inspired by that example and by their devotion to Her Majesty The Queen, all ranks of the Royal Air Force will continue in the future to do their utmost to preserve our liberties and to maintain the peace of the world.

Marshal of the Royal Air Force.

15*th February*, 1952.

[*The above was specially written for "The Royal Air Force Quarterly" by Marshal of the Royal Air Force The Viscount Trenchard, G.C.B., O.M., G.C.V.O., D.S.O., D.C.L., LL.D.*]

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HER MAJESTY QUEEN ELIZABETH II

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THE QUEEN'S MESSAGE TO THE ROYAL AIR FORCE

On my accession to the Throne, I wish to assure my Air Forces at home and overseas of my gratitude for their services to my beloved Father and of my confidence in their loyalty and efficiency. My Father won his wings as a young man and watched with pride the rapid development of the Royal Air Force and its sister forces throughout the Commonwealth. I was glad to be able to present his Colour to the Royal Air Force in the United Kingdom last year, and I value highly my own association with the Royal Auxiliary Air Force.

In a short time, the Air Forces of the Commonwealth, by their skill and courage, have earned a reputation and established traditions of which they may well be proud. Their heroic exploits in the Second World War will never be forgotten. Now, in far-flung stations over the world, they play a constant, and always hazardous, part in protecting the security of our territories and communications.

I assure them of my personal solicitude for their welfare and I trust that they will continue to display that pride of service and unswerving allegiance to the Crown which they have ever shown.

ELIZABETH R.

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EDITORIAL

THE BOTTLE-NECK OF REARMAMENT

IN the years preceding the Second World War we profited considerably during the earlier period by not wasting our national resources on lavish equipment of our Air Force. At times our aeroplanes were of much older vintage than those of the potential enemy and our numerical strength quite inadequate for our defence. Although better prototypes were produced in numbers we held our hand for a considerable period before selecting types for production, thereby, *even if at some risk*, preventing the rearming of squadrons with interim types which might have to be replaced by even more modern ones to put us on parity with those of Germany.

When the greatest air battle in history (the Battle of Britain) was fought for air supremacy over this country, we had just sufficient fighter aircraft of the latest design with which to defeat the enemy.

The extremely narrow margin by which this victory was won should be a lesson for all time, as should the unexpected period of grace given to us by the "phoney war." *This latter advantage is unlikely to be repeated.*

Another fact to be remembered is the inadequacy of our bomber force through the early years of the last war. Had it been of adequate strength it might well have shortened the war considerably and saved innumerable losses to ourselves and our allies.

What of our preparations today to meet the threat from an even more formidable air attack? The responsible leaders of our Air Force look at the potential air strength of Russia and are aware of the task that would confront them. Every day they have to face the problem of being ready to strike back hard and immediately if we are attacked.

They know the only way to win a decisive victory in the battle for air supremacy is to destroy the enemy air force and the only sure way of doing so is to crush them at their source, their aerodromes and their aircraft industries. This is the major part of our defence for which modern bombers are required.

With the grim threat of an atomic bomb attack we require the very latest jet fighters in adequate numbers to deal with the potential number of fast, modern bombers known to exist in Russia.

There is no nation whose national economy would permit the scrapping of fighter and bomber aircraft of older pattern each time a better prototype could be put into production. This would lead to national bankruptcy and no air force at all.

When obvious necessity forces a nation to prepare its air force for a major war it would be of inestimable value if the moment when the attack was likely to be made could be reasonably assessed.

This country for the first time in her history has given air power the highest priority in an armament programme. There must inevitably, in carrying out such a huge programme, be some lag in the early stages and some discrepancy between estimates and performances, but it has been a matter of criticism both in this country and by America that progress is too slow. Time is not on our side.

British post-war designs are brilliant, but the harsh, depressing fact is that they exist largely in prototype, not in potent numbers.

Whilst agreeing that in our earnest desire to prevent war we and our allies are

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endeavouring to build up air forces of sufficient strength to deter Russia from attacking us, nevertheless there is the very real risk that she might not feel disposed to await such a moment. It is therefore our equally earnest hope that our aircraft industries' production lines should become more active.

We are getting too few modern aircraft and too slowly.

Does it require a miracle to start the Gloucester GA.5 rolling off the production lines in large numbers? Or the other equally competitive fighters to the Russian MIGs?

The bomber position is even less satisfactory. Whilst recovering from the unfortunate loss of the first prototype of the Vickers Valiant, is it not possible to accelerate for the time being deliveries of the Canberra?

Now that Britons have to make increased personal sacrifices they will do so more willingly if they can see some results in the shape of the more speedy rearming of our squadrons with modern aircraft.

Given the essential labour, the machine tools and the materials, we have no doubt that the British aircraft industry would perform the necessary miracle. Their motto has ever been:

"The impossible we do at once;
Miracles take a little longer."

Although firmly believing in the moral of the fable of the Hare and the Tortoise, *we wish the tortoise would move a little faster.*

LET US HAVE UNITY OF PURPOSE

It is not without anxiety that we follow the events at the long-drawn-out truce negotiations and the gathering clouds in Indonesia.

For the governments of the Western Powers to confer and agree beforehand upon joint action in dealing with a threatened calamity in no way increases the danger of its falling upon them; on the contrary, it should have the reverse effect. To fail to take such action would be foolish in the extreme.

The real and even greater danger lies in any serious disagreement at this stage between the Great Powers of the United Nations. To cause divergencies between the peoples of Britain and America has been one of the major occupations of the Russian dictators and those working for them, both in this country and the U.S.A., for a very long time.

The divergence of views between the foreign policy of this country and that of the U.S.A. towards China is causing grave concern on both sides of the Atlantic.

Although the subject is one upon which, as good friends should, we agree to differ, it provides our enemies with just that chance of causing trouble between us.

It is true that our recognition of the Pekin Communist Government brought with it certain grave difficulties and a disservice to Anglo-American relations. Undoubtedly our reasons were that we recognized an accomplished fact, that the Pekin Government controlled China and, despite disagreeing with their ideology, they controlled one-sixth of the earth's population. We recognized them, hoping to keep official contact with so large a proportion of the human race and probably had at that time some hope that America would follow our lead and possibly in time help us to draw China away from her undesirable association with Russia. But America, more closely associated with the National Government and taking a graver view of the threat of the Sino-Russian alliance, chose otherwise.

Subsequent events have not helped this delicate situation. Today the active co-operation of the armed forces of the Pekin Government against the United Nations in Korea makes the British policy seem inexplicable to Americans,

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particularly when the supporters of the National Government are anxious to fight for us in Korea.

Does the fact that we recognized Poland's exiled Government, when that country was controlled by a puppet government set up by the Germans in the Second World War, make our present policy seem inconsistent? Can it be said that Russian influence in China now is the same as that exercised by Germany in Poland in the past? Certainly not, as the former is a mutual alliance and the latter was an unwilling one.

The hopes behind our recognition of the Pekin Government were rather idealistic; undoubtedly such aspirations still live and might be advantageous while negotiations for an armistice in Korea continue.

Should they fail, to enable the Americans and ourselves to face the future without any risk of differences arising between us, some reconsideration of our foreign policy concerning China might well be necessary.

The only hope of the free countries of the world lies in complete unanimity. To show a united and resolute front in the Far East might go a long way towards preventing our becoming involved in "the wrong war in the wrong place and at the wrong time." It might even result in defeating the Communist-inspired strategy of dispersing the military strength of the United Nations over the four corners of the earth and allow the desired concentration of force, where the real threat to our freedom lies, in Europe.

The first step for this unification undoubtedly lies at home, among the people of these islands. The grave crisis that confronts Britain, not only our national economy but our continued existence as a nation, should enable us to forget party politics and turn us into patriotic citizens once again with a unity of purpose to overcome the dangers which threaten us.

THE JULY ISSUE

Among the articles in the July number of this journal will be:

*KNOW YOUR ALLY: An article on "Rebuilding the Royal Norwegian Air Force" and possibly "The Turkish Air Force."

*RHODESIA: Impressions on Rhodesia from an R.A.F. officer living there.

A ROYAL AIR FORCE ACADEMY: Suggestions regarding the education of sons of the Air Forces.

*DOMESTICS: A light article on the problem of domestics at home and overseas.

*THE ROOF OF THE WORLD: An officer's experiences in Tibet.

*PROTOTYPES FOR THE WESTERN ALLIES: Description of the latest prototypes.

*LIFE IN A UNIVERSITY AIR SQUADRON.

In addition, the usual series of "In Parliament," "Our Commonwealth Air Forces,"* "Current Events,"* "Promotions and Appointments,"* "Sport," "Book Reviews" and "List of New Books."

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The Centurion [Crown Copyright

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ARMOURED WARFARE

By Lieutenant-General Sir Giffard Le Q. Martel,
K.C.B., K.B.E., D.S.O., M.C.

TWO new Corps came into existence for use in battle during the First World War. One was the Royal Flying Corps which was formed shortly before the war and by its actions it showed quite clearly the very great part that this arm would eventually play in war. The other was the Royal Tank Corps which took an equally prominent part. There was an affinity between these two Corps, both of which used mechanical power for the first time in war and they were both dependent on the use of the internal combustion engine.

I was at the headquarters of the Tank Corps in France and I well remember Marshal of the Air Force Viscount Trenchard, who was then commanding the R.F.C. in France, ringing me up and saying that he was most anxious to help us in any way that he could. This was in October, 1916, when we were just finding our feet in France, and Major-General Trenchard (as he then was) did indeed give us every assistance. Close contact has been maintained ever since between these two mechanical arms.

During the First World War the work of the Royal Tank Corps was centred almost entirely on assisting the infantry to break through strong defences. For this purpose we had to use large and heavy tanks. Before the end of the war, however, we had already seen that this new mechanical power would have to be used for the mobile role in battle as well as in trench warfare. For this purpose we demanded faster and lighter tanks which would have the increased mobility which was necessary for this role. Only a few of these faster tanks, however, arrived before the end of the war, and this mobile role was never tried out.

AFTER THE FIRST WORLD WAR

After the war there was a reaction against tanks. As they had only been used in trench warfare they were classed as siege weapons and were not considered as likely to assist very much in the main tasks that would face the Army in the future. On our side, in the Tank Corps, however, we were determined to develop faster and lighter tanks for the mobile role and we were convinced that we would be able to resurrect the form of warfare by which cavalry in past campaigns had won great victories at high speed and with comparatively little loss. We developed the right type of tank and also the technique for this new form of mobile warfare. Unfortunately a long period of financial crisis stepped in, and although we had made this progress we could not equip the Army on these lines except on a very small scale.

The Germans, on the other hand, copied all our ideas and they built great numbers of mobile tanks. With these machines they were able to train their very large force of panzer divisions for several years before the Second World War. Against this we could only pit two half-trained and half-equipped armoured divisions on the outbreak of war.

As a result we saw those famous victories carried out by the panzer forces. They overran Poland in eighteen days and France in a month. This was equivalent to the greatest victories by cavalry forces in bygone days. It was a tragedy that our nation that had invented and developed all these ideas should have been

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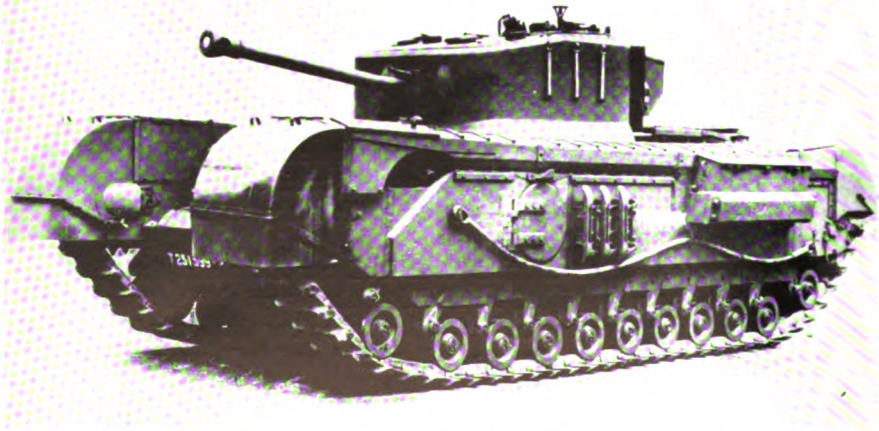
The British Comet



[Photo: School of Tank Technology

The Churchill VII Tank

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left quite unprepared for war. It should be noted that the German air forces co-operated very closely with the panzer divisions throughout these operations.

Although this work was almost entirely mobile warfare, we realized in our country that position warfare would arise at times and that heavy tanks would be needed for this purpose. It is of interest that Germany built no heavy tanks—other than experimental models—between the two World Wars. Hitler was determined to win the war at high speed and indeed he came within an ace of doing so. He probably realized that if he did not win almost at once he would lose in the end. Hence he concentrated on the mobile role.

In our country we kept to our original policy and developed both heavy tanks for position warfare and faster machines for the mobile role, which were called cruiser tanks. The Matilda was a fine heavy tank, and when I was commanding the 50th Division I had a brigade of these tanks when I met Rommel with his mobile tanks at Arras in 1940. With the support of these tanks we inflicted heavy casualties on his panzer division, but we could take no part in the mobile warfare that followed. The Matilda was followed by the Churchill, which was another very good heavy tank at that time.

On the mobile side we did not do so well. There were many delays, but in the end we produced the Cromwell and the Comet, both of which were excellent cruiser tanks for use in this role.

At this time I was the Commander of the Royal Armoured Corps. The production side for tanks did not come under me though I expressed our views, of course, as to what we needed. Early in 1943 I was sent to be the Head of our Military Mission in Russia and left the armoured forces. It then seems that no attempt was made to produce the next model of the heavy tank. As a result we fell down badly on that side, and we were shot off the battlefield by the German heavy tanks in the latter stages of the war. The Germans had changed almost all their productive capacity to heavy tanks after they saw that they had failed to achieve a decisive victory on Russia in 1941.

Our armoured divisions did well and their training and technique carried them to final victory. We would, of course, have won the final campaign at a cheaper price if we had also developed the heavy tanks for use in position warfare.

THE POSITION AFTER THE WAR

We went sadly astray in certain directions after the Second World War. We have seen that if we had built up a number of armoured divisions instead of so many infantry divisions between the wars we might have stopped Hitler's rapid advance and saved France. This might well have halted the whole war. We made the same mistake again after the war. The only possible enemy was Russia and she had great numbers of infantry divisions. It was not until much later that she was able to build up armoured forces and they are still very short of mechanical transport on which armoured forces so largely depend. The right course for our country was therefore again to retain as many armoured divisions as possible. If the threat from the Russians developed we would then have been able to send mobile armoured forces, between their columns, to attack them in flank and rear. This is the form of warfare which Russia dreads. Of course, the full support of air forces would be needed for this role, and infantry divisions would be required to hold firm bases from which these armoured divisions would operate. Most of these divisions could be supplied by France or Belgium.

Unfortunately, we did the exact opposite and disbanded nearly all our

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armoured divisions and concentrated on raising a large manpower army to meet the Russian masses. This army would have been far inferior in numbers to the Russian Army and would have had little chance of success.

THE POSITION TODAY

During the past year great changes of policy have taken place. We now realize the foolishness of trying to take on the Russian masses in this way. Instead, we are now concentrating on raising as many armoured divisions as possible. There are many difficulties. As an instance, large numbers of technicians who fill such a vital role in this form of warfare, departed to civil life when the armoured divisions were disbanded. It is not easy to rebuild these divisions.

It is now agreed that the Western Nations must raise a total of forty or fifty divisions of which half should be armoured, and we must produce our share of these. All these divisions must be standing on the ground available for use at any moment and at full strength. General Eisenhower is confident that he will have these divisions ready within the next two years. We will then be in a position to ensure that Russia carries out the treaties that she signed before she crossed her frontier and advanced westwards into Europe. She was under contract to establish democratic rule in accordance with the will of the people in each of these countries which she overran. Instead of this she established communist autocracy complete with slave armies and concentration camps. The beginning of a return to peace in the world will come when we free these countries and ensure that the Russian commissars and their forces return to their own frontiers. We cannot reach this stage unless we have the necessary forces, though I do not think that actual war in the form of a Third World War is likely.

In addition to the difficulty of raising these forces, which must, of course, contain a strong German contingent, we have the problems of providing the equipment and munitions of war. Here again we are somewhat handicapped by false policies which followed immediately after the war. For instance, a decision was taken that we would only have one main type of tank and that this would be used for both the mobile and the position role. The officers with the most experience in armoured warfare gave it as their view that this policy would not succeed. This dual-purpose tank was the Centurion and it appeared just after the war. The component parts of this tank, such as the engine, gearbox and transmission, were all used during the war in other types of tank, and as a result they were thoroughly tried out and tested. As a consequence the Centurion tank was an excellent machine and thoroughly reliable. It is not, however, the ideal type of tank for either the mobile or position warfare role. It is not powerful enough under modern conditions for the heavy role and it lacks the high degree of mobility which is needed for the mobile role.

It is now accepted that this policy was a grave mistake. A heavy tank is now to be provided which will be an excellent tank for heavy fighting. For the mobile role some of our war-time cruiser tanks, such as the Cromwell and the Comet, are being used and they are still very suitable for this role. I cannot say whether it will be possible to overcome the difficulties and increase the mobility of the Centurion tank for use in the mobile role. I would myself have preferred to have kept to the two types of heavy and cruiser tank, but there will, of course, be plenty of uses for the Centurion tank in war, for such purposes as semi-mobile warfare.

The general policy of the Western Nations seems now to be settling down on the lines that we suggested earlier. This consists of the use of considerable numbers of armoured divisions equipped with cruiser tanks of one type or

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another. It is becoming accepted that these divisions should be used in a highly mobile role to attack the enemy in flank and rear. They must use their mobility to avoid attacking strength. Mobility replaces strength and numbers. This is the way to take on the Russian masses if war should arise. At the same time there must be the heavy tanks to support the infantry divisions that are holding pivots or firm bases from which the armoured divisions are operating. These may be organized in regiments that form part of the infantry division or in separate tank brigades.

Objections have, of course, been raised to this broad policy. Statements have been made that the highly mobile warfare carried out by the panzer forces in the early stages was only possible because the enemy were demoralized and that it was really a pursuit. This is not true. The Poles fought magnificently and so did the Russians. The French also fought very well in parts and I saw them in action. This form of very mobile warfare could certainly be repeated today if the Western Nations had the necessary forces.

Then the point is raised that as the Russians now have large numbers of tanks it is they who will attack us on these lines. We must, however, remember that the Russians are very short of mechanical transport for mechanizing such a very large army. When one sees a Russian armoured division one finds that the tank brigade may be up to strength but that the mechanized infantry and artillery which play such an important part have sometimes been reduced to quite small units due to lack of transport. As a result, their state of training in co-operation between all arms is a long way behind that of the Western Nations. When it comes to a clash between the armoured divisions of the two sides I do not think we will have undue difficulty in establishing our superiority. The Russians have also built a large number of heavy Stalin tanks with the idea that they will serve to protect their infantry divisions from attack by our armoured divisions. These Stalin tanks, however, do not possess much mobility and our armoured divisions should certainly be able to evade them and carry out their role.

Finally, we must remember that operations of this nature would be very difficult and perhaps impossible without a considerable degree of air superiority. This is a subject on which my readers may be better informed than myself, but I have seen the Russian air forces in their country. They now have considerably more aircraft and much more modern types than when I saw them, but they are a long way behind the Western Nations in organization and administration. They have also had much leeway to make up to reach our level. I find it hard to believe that they will be able to face up to the combined air strength of the Western Nations for any length of time.

Lieutenant-General Sir Giffard Martel, K.C.B., K.B.E., D.S.O., M.C., Commander of the Royal Armoured Corps, 1940; Head of Military Mission at Moscow, 1943; Author of "The Russian Outlook," "The Problem of Security," and other books.

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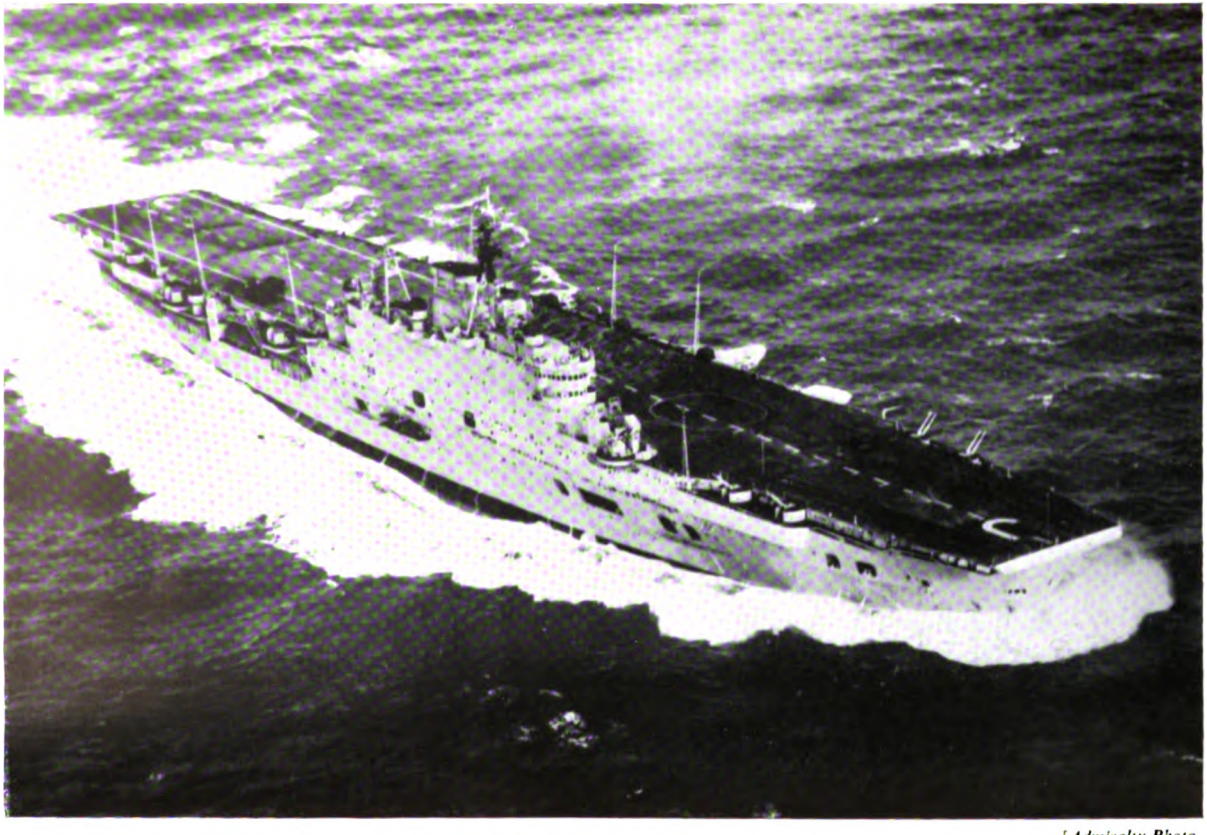

[Admiralty Photo

H.M.S. "Eagle" on acceptance trials

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MAID OF ALL WORK

By Rear-Admiral H. E. Horan, C.B., D.S.C.

MANY and varied are the roles that an aircraft carrier may be called upon to play. Her mobility, accommodation and the "hitting power" provided by her aircraft make her a unique unit in the armed Services.

Let us first of all see how she fits into the primary object of all naval forces—to control the sea communications. It stands to reason that to carry out this duty she must be able to "locate and report, attack and destroy" any menace to these vital links.

ATTACK ON HEAVY SHIPS

A classic example of attack on enemy heavy ships was the carrier-borne attack made from H.M.S. *Illustrious* on the Italian battle fleet in Taranto Harbour. This port was outside the range of any shore-based torpedo aircraft and so no doubt the Italians thought it was a safe anchorage for their fleet. But with the advent of the *Illustrious* in the Mediterranean the situation changed. The Commander-in-Chief, Mediterranean, was quick to seize his opportunity and thus, on 11th November, 1940, a carrier-borne attack was launched. For the loss of two aircraft the Italian battle fleet was put out of action for six months.

Even more devastating results were achieved when the Japanese treacherously attacked the American fleet in Pearl Harbour just over a year later. This attack gave our enemy temporary command of the sea communications in the Pacific.

The sinking of the German battleship *Bismarck* and the destruction of the three heavy Italian cruisers off Cape Matapan were both brought about by the fact that aircraft flown from carriers crippled the enemy and thus made it possible for the other units of the fleet to bring about the desired result.

CONVOY WORK

So much for the attack on heavy ships. In the last war the menace to our sea communications both from submarines and enemy aircraft was formidable. But once carriers, generally in the form of converted merchant ships, formed part of the convoy escort the threat was at once got under control.

Here was a case when the escort commander had at his disposal a means of launching an attack on an enemy at instant notice. The pilots of the aircraft were fully aware of the tactical situation and thus there was no waste of time in having to "brief" them. They were able to take off with the fullest available information. It is only right to assume that in any future war it will be the policy to have at least one carrier working with the convoy escort.

OTHER OPERATIONS

Carrier-borne aircraft also played an important part in the support of military operations ashore. The Madagascar expedition relied for its air support on an aircraft carrier—H.M.S. *Formidable*—being made available. The landings in North Africa in 1942, at Anzio in 1943, and in the South of France in 1944 were also examples of the value of this form of support.

An interesting case of the value of a "floating airfield" was when the Azores were made available by Portugal in 1943 for use as an air base from which shore-based aircraft could operate in defence of the trade routes. Owing to the

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weather it was impossible to set up the shore facilities to make this possible for the matter of a fortnight. During this period H.M.S. *Fencer*, a small carrier, carried out the duties for providing aircraft for all anti-submarine work in the vicinity of the islands.

A case when aircraft had to be flown off from a carrier and landed on an airfield after carrying out their operations was when the Americans first attacked Tokyo. Here the aircraft were brought within range by carriers in the dark and after the aircraft flew off the latter retired out of range of shore-based aircraft. The attacking aircraft subsequently landed on the mainland of China.

When the war in Korea broke out the light fleet carrier H.M.S. *Triumph* found herself in the Korean Straits bound for a refit and leave at Singapore. Orders were received that she was to join the United Nations forces and operate against the North Koreans. Within four hours of the orders being received anti-submarine patrols were flown and, after a visit to a base to "top-up" with fuel, she joined the American forces in the theatre of operations.

[*Admiralty Photo*

The aircraft carrier H.M.S. "Furious" taking a huge wave over the flight deck when ploughing through heavy seas

What can be done in the way of supporting ground forces by a light fleet carrier is well illustrated by the record of H.M.S. *Theseus* during the winter of 1950-51, when operating in Korean waters. During a period of six months' operations 3,489 sorties were flown—an average of about fifty per operating day—all in most unfavourable weather with often sub-zero temperatures prevailing. The following statistics are of interest:

20-mm. ammunition expended: 528,815 rounds.
Rocket projectiles: 7,317 (60 lb. explosive).
500-lb. bombs: 1,474.
1,000-lb. bombs: 92.

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REPAIR FACILITIES AFLOAT

When aircraft are operating from carriers in distant theatres the question of repairs to aircraft looms large. An ordinary aircraft carrier can carry out what might be termed "first aid" in her own workshops, but major repairs would normally be done at an air base. The Royal Navy has, however, introduced into the Service a special type of carrier which is capable of doing all that the shore workshops can. Such is H.M.S. *Unicorn*, and a short account of some of her recent activities is interesting.

At the beginning of the Korean War this ship happened to be in the Far East. It was obvious at once that her services would be much sought after. She is still on that station acting in support of the operating Commonwealth carrier. A few figures showing what she has done to date are of interest. Since the start of the Korean War she has ferried to the forward area over 200 naval aircraft and taken a third of that number of repairable "wrecks" to Singapore. As well as this ferrying job a large amount of work has had to be done on repairs to damaged aircraft and preparing them for flight. She has also acted as a training carrier, provided deck landing practice for replacement pilots, and when replacements were needed she has flown off aircraft direct to the operating carrier. In the event of hostilities in the future in any part of the world where shore-based repair facilities are meagre or lacking, this type of ship will form an essential part of the "fleet train."

In addition, her services have been utilized by all the fighting units for transporting heavy and inconvenient loads which the normal Merchant Navy facilities have been unable to undertake. To date she has carried over 4,000 passengers in addition to the cargo mentioned above.

GENERAL REMARKS

From the few examples given above it is only fair to deduce that the mobility and instant readiness of an aircraft carrier are factors that must be taken into consideration in the plans of any future war. Further, these two factors give the commander on the spot power of hitting at an enemy where the latter least expects it. Admiral Carney, U.S.N., has recently stated that atom bombs can be delivered well into Russia from carriers operating in the Mediterranean. This use of carriers can be enlarged on. Supposing a force of the latter was disposed off the north coast of Norway as well as in the Mediterranean, targets in Russia could be dealt with on both flanks simultaneously. This eventuality must be considered by the authorities in the Kremlin and may well act as a deterrent to any hasty action.

Following on from this it is clear that the nations possessing carriers can bring considerable striking forces into action in places well removed from what may be termed the main fronts and thus exploit to the full the principle of "maritime strategy"—to attack where the enemy is weak or unprepared. This form of attack has always been used by Great Britain in war and is one of the precepts that continental powers have failed to understand.

Recently much use has been made of carriers for transporting large numbers of troops and stores at short notice to places where their presence is required. This, of course, is not their proper function, but it well shows to what uses their high speed and large accommodation can be put to in an emergency. To carry this farther, there is no reason why one carrier should not carry the ground troops required to any threatened locality and be accompanied by another with the

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aircraft and personnel for both. In this way, once the troops are landed, the two carriers could at once swing into action and act as supports for whatever was intended.

THE FUTURE

The possibilities of the uses to which the aircraft carrier can be put are by no means exhausted by the examples given. It is good to see that both the British Empire and the United States are rapidly expanding the carrier forces in their navies. Shortly the former will have twenty-three carriers at its disposal and the latter is building ships of over 80,000 tons to take a place in its fleet. These latter great ships will be able to operate aircraft of the largest types and, as a mobile airfield at instant readiness, to operate in any part of the world. These forces will be a powerful factor in all strategical considerations.

PERSONNEL

It would be wrong to conclude this short account without reference to the personnel who man this type of ship and have to carry out the many and varied duties on which they may be employed. It stands to reason that the personnel of naval aviation must be first class, have an outstanding degree of initiative and adaptability, and above all have the most careful and extensive training. In no other way can they be expected to carry out efficiently the duties that may fall to their lot. Whether it be attacking an enemy battle fleet in harbour, finding him in thick weather or even submerged in the wastes of the ocean or supporting the ground forces in an amphibious operation, the personnel who man the aircraft must have training in all these roles.

The importance attached to the efficiency of naval aviation by the Admiralty is well shown by the number of establishments which are devoted to training. In the courses at the latter, specialization is the keynote. In no other way can efficiency be attained in a short time.

To those who have been lucky enough to watch aircraft being operated from a carrier (often at night with the ship fully darkened) and to see the ease and speed with which flying off and on is carried out, often in bad weather with the ships pitching and rolling in a seaway, there always remains the feeling that the target set by the Admiralty in skill and efficiency of the personnel has been attained.

THE JULY NUMBER

Feature articles, those of a lighter nature, news items of interest to Air Force personnel, letters to the Editor and any other material for publication in the July number of this journal must be submitted NOT LATER THAN 1st MAY, 1952, to The Editor, R.A.F. Quarterly, "Chaseley," Eastbourne, Sussex.

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BRITISH FOREIGN POLICY

By Peter Calvocoressi*

THE business of the British Foreign Secretary is to keep the Minister of Defence in a back seat. When the Minister of Defence looms larger than the Foreign Secretary, that means that the Foreign Secretary has failed in his principal task of protecting British interests by peaceful means. These interests are not merely the obvious narrow material British interests. To put it at its lowest the interests of this country consistently entail some consideration of other people's interests, especially now that British power is comparatively less than it was a hundred years ago. In other words, Great Britain needs friends; and one cannot get friends without considering their interests. Besides, the conduct of British foreign policy must take account of moral as well as material issues, if only because the British people are often moved by moral impulses. If I had, therefore, to define the Foreign Secretary's tasks in the fewest possible words, I would say that they were three: first, as I have already said, the protection of British interests by peaceful means (of which the chief is diplomacy); secondly, ensuring that foreign governments and peoples understand what the British think and feel on particular problems; and thirdly, explaining to the people of this country what foreigners are thinking and feeling, and why. Until differences are pointed out to them, people in one country are apt to assume that other people see things in the same way as they do themselves. To explain the differences, and so remove sources of misunderstanding, is an important part of the work of any statesman who is bent on peace.

So much by way of introduction. Now for the setting in which these principles have had to be applied in the last few years.

At the end of the war and for a short time after it, many people hoped and believed that world affairs would be managed, as the war had to a certain extent been managed, by international agreement under the harmonious leadership of the Great Powers. But things did not turn out that way, and the principal question before the Foreign Secretary ever since has been to find the right policy to pursue in the presence of Russo-American hostility. I think it is fair to say that Mr. Bevin was one of the first to realize that this was indeed the crucial question and that the dream of Great Power harmony was an illusion. Certainly by the end of 1947 this had become reasonably clear. The failure of the Powers to agree on a plan for the control of atomic energy, their failure to agree in Germany and the establishment of tyrannical rule by minority parties in Eastern Europe marked the dissolution of the war-time alliance. Long, frustrating conferences created in many westerners the feeling that there was no will for agreement on the other side, or at any rate no room for agreement.

Once this view had been accepted, it was necessary to face an alarming fact: the west had disarmed and found itself therefore at a serious disadvantage not only in the face of a threat of war but also in negotiation. At the same time, economic problems turned out to be even more serious than had been expected. It became clear that, even with the support given by the Americans through the Marshall Plan, Europe would take some time to stagger to its feet again. In these circumstances there were two possible policies for Great Britain and for the

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other non-Communist countries of Europe. Western Europe could, on the one hand, throw in its lot with the U.S.A., rearm and hope to prevent a new catastrophe by showing a bold front to the possible enemy. Alternatively, Western Europe might refuse to take sides in a struggle of giants which seemed to many Europeans to have nothing whatever to do with them; these hoped to avoid the catastrophe by staying neutral or, more positively, by assuming the role of mediator.

That Europe has decided to adopt the first of these two policies is largely due to British policy. The North Atlantic Treaty, signed on 4th April, 1949, by ten European states and by the U.S.A. and Canada, was a triumph for the British view, which can be summed up in two propositions: first, that neutrality was an unreal will-o'-the-wisp, which would avail nothing in the event of war; and secondly, that any association of western states, whether for economic or for military purposes, would be ineffective if it did not include the U.S.A. This view did not prevail without opposition. In Great Britain itself there were some who, in accordance with the national character, fancied the role of referee in international affairs and coveted the glory which would come to the sensible, independent peace-maker. There were also some—and there were many more of them on the Continent—who represented the American way of life as hardly less obnoxious than the Russian (of which, incidentally, they knew far less). Again, it was argued that to join the American camp was tantamount to provoking the Russians to start the very war which everybody wanted to avoid. Neutralists, while admitting that neutralism was itself a risky policy, argued that the American alliance was the one thing worse, since it left no chance at all of avoiding an arms race, ending either in war or in an economic collapse from which the Communists alone would profit. There was also another school of thought, which believed that Western Europe could become a third power in the world roughly equal with, and so holding the balance between, the U.S.A. and the U.S.S.R.

The dominant British view has been that all these arguments were false: that Europe could never become a third force in world affairs and was in any case for the time being dependent on American charity for much of its food and raw materials; and that the neutralists were blind, if they imagined that unoffending weakness would provide a passport to salvation. Growing fear in Europe had led in 1948 to the signing of a defensive treaty between Great Britain, France, Belgium, Holland and Luxembourg. This was in British eyes but a stepping stone to a wider alliance. Speeches by leading Americans gave grounds for hoping that, as the U.S.A. had supplemented Europe's economic efforts with the Marshall Plan, so the U.S.A. would again support Europe's defensive efforts, provided Europeans first took some steps to get together and help themselves. These hopes did not prove vain, and the five-power Treaty of Brussels of 1948 was followed a year later by the North Atlantic Treaty and then by the American Mutual Aid Defence Programme, under which arms and other military supplies have been arriving in Europe for the past two years. As a result of the North Atlantic Treaty, Great Britain has been committed to a strenuous course of rearmament, and she has been committed to this course because the leaders in both the principal political parties believed that the best way to counter possible Russian aggression was to become strong once more and that the only way to become strong was through alliance with the U.S.A. Since the signing of the treaty, Great Britain and the other signatories have been chiefly concerned with making it work, with producing the organization, the equipment and the formations needed to give it substance. Questions have also arisen about the extension of the

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alliance into the Mediterranean and about the beginnings of a similar organization in the Middle East.

In Asia the outstanding post-war event has been the victory of the Chinese Communists over the Kuomintang. By this victory the U.S.S.R. acquired an ally for the first time since the end of the war. Whereas in Europe the U.S.S.R. has a number of satellities, who are not very strong and perhaps not very happy, in Asia the U.S.S.R. now has an ally of the first rank. The Sino-Russian treaties, signed in Moscow in February, 1950, are the counterpart of the North Atlantic Treaty and they mean that, while the U.S.A. and its friends have regained the initiative in Europe, in Asia the U.S.A. is on the defensive. The Sino-Russian alliance also means that the American policy of containment—that is to say, the policy of building up situations of strength on the Russian perimeter in order to check any further Russian expansion—has been converted from something difficult into something Herculean; for the containment of the U.S.S.R. is one thing, and the containment of the U.S.S.R. *plus* China is quite another. Further, the new situation which was created by the Chinese Communist victories produced, not indeed a split, but uneasiness and friction in the western alliance.

When in 1949-50 power in China passed to a regime unfriendly to the western powers, the west was presented with a difficult choice. Assuming that there was a struggle going on between the Russians on the one side and the Anglo-Americans and others on the other, the latter had to decide what attitude they should adopt towards the new Chinese Government. They might try to detach China from the U.S.S.R., or they might resolve to regard China as irredeemably in the enemy camp. The main objection to the first policy was that it would certainly take time. There were those who argued that there was very little time to spare and that it was pointless to waste time and effort and possibly money in trying to make friends with a power which could not be won over before the conflict broke out. If this view were correct and China had to be regarded as an enemy, then it was urgent to make friends with the smaller maritime states of Asia and especially with Japan. But the western allies were not by any means convinced that this view was correct. The British in particular wanted to try the alternative policy based on the belief that the Sino-Russian alliance was not cast-iron and might be tampered with in good time. Great Britain recognized the Chinese Communist Government in January, 1950—that is to say, the British Government recognized the plain fact that the Chinese Communists had in fact the best claim to be considered the rulers of China, whether the British or anybody else like that fact or not. It was expected at this time that other countries, notably the U.S.A., would follow the British lead, and indeed the British action was thought to have been taken partly in order to help the State Department in Washington to circumvent Republican opposition to a similar move by the U.S.A. But things did not turn out as expected. Americans are traditionally more inclined than the British to regard recognition of a foreign government as something more than recognition of a fact. Whereas the British accord recognition to a government which has in fact established itself, regardless of whether they like it or not, the Americans have inclined rather to the view that recognition implies approval, and of course the new government in Peking did not meet with American approval. Supporters of the Nationalist Government of General Chiang Kai-shek were also more numerous and more vociferous in the U.S.A. than in this country. As a result, the U.S.A. had still not recognized Peking when war broke out in Korea at the end of the June, 1950. This made it more than ever difficult to secure American recognition, and active Chinese intervention in the war later in the year made it

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quite impossible. The principal result of this was a divergence between British and American policy which still persists, however much both parties try to conceal it. There is, therefore, a certain awkwardness among the Atlantic partners when they come to consider affairs in the East, though they all know that the preservation of their alliance and of their good temper among themselves is of paramount importance. These differences, however, are differences of method and not differences of aim, for the Americans—like the British, French and others—aim above all at peace in Asia in order that they may have the time and the energy and the resources to help the peoples of Asia to raise their standards of living and to secure their friendship. One of the most tragic results of the war in Korea—and a setback to Anglo-American policy—is that so much money has to be spent on war material in Korea at a time when the western powers were preparing to spend this money in Asia in quite different ways.

The disagreement between the British and Americans over policy towards China emphasizes something new in the conduct of British policy. It has long been necessary for a country to work out its policy in co-operation with its allies, but there is a great deal of difference between the position of a senior partner in an alliance and a junior partner. Great Britain has been used to the position of a senior partner. Now, however, in relation to the U.S.A., Great Britain is a junior partner and is having to learn the techniques appropriate to this unaccustomed situation. The chief differences between a very Great Power and what we may call a secondary Great Power is that the former can more easily afford to make policy at short notice or to change it overnight. This is a luxury which goes with the possession of surplus power. At the same time such sharp changes can make things awkward for junior partners. The junior partner, therefore, has to look far ahead and to be constantly trying to influence the senior partner in the making of joint long-term policy. It is particularly important in this country at the present time to see that the machinery of consultation between London and Washington is first-class and constantly functioning, for if it is not, London may suddenly be faced with unexpected and unpleasant situations which London will be powerless to affect at short notice. Doubts about the effectiveness of this machinery were indeed a principal cause of Mr. Attlee's sudden visit to Washington in December, 1950. If the machinery is working properly it should never, or hardly ever, be necessary for a Prime Minister to make expeditions of that kind.

What is the most important question in the future? I think it is this. The most important element of British foreign policy at the present time is the alliance with the U.S.A., and the most important expression of that alliance is the North Atlantic Treaty Organization. Now this alliance and this organization proceed upon the basis that, in order to avoid a third World War, it is necessary for the west to rearm. The first object of this rearmament is, however, not to win a war but to prevent it; winning the war is only the second object. Rearming to prevent a war is admittedly a risky business, though possibly less risky than any other course. One of the difficulties is to know when to stop. The west is rearming in order to be able to negotiate with the Russians on equal terms and in order to induce in the Russians a real desire for a settlement. The big question in the future is to know when the west has rearmed enough for these purposes, because to continue rearmament beyond that point would be dangerous as well as needlessly expensive. This, then, is the big question for the experts—that is to say, Foreign Office officials and diplomats. A great deal depends on their ability to get the answer right.

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WHY KOREA?

An examinatiou of the fundameutal causes of the preseut interuational tension

By Wing Commander R. F. Pemberton, M.C., T.D.

THE war in Korea drags on and the end is not yet in sight. Why are we interested in Korea? Why did the Americans so promptly send forces to help the South Koreans oppose the invasion from the North; and why are we and many other nations helping them? And, to take the matter one stage farther back, why did the North Koreans invade South Korea?

No one can doubt that it was at Russia's instigation and with the help of Russian material that the North Koreans attacked South Korea. The circumstances were singularly favourable. Korea, once united, had been arbitrarily divided at the 38th Parallel, which was the line chosen to separate the Russian and American zones of occupation and influence when the Second World War ended. North Korea, richer and more industrialized, became a satellite of Russia; while South Korea, mainly agricultural, became an independent republic under a not very efficient government, was evacuated by the Americans in accordance with agreements, and was left to look after itself.

There may be some justification for the desire of the North Koreans to reunite Korea, which for many years had been one State, though not always independent. And it may be that many South Koreans would also have been glad to see the two parts of the former whole reunited if it could have been done peacefully and by agreement—though perhaps they would not have been in favour of Russian influence.

But there can be no justification for forcing the union of two separate States (for that is what they are at present and have been for six years) by sudden and unprovoked armed aggression by one against the other, as was done. And the Americans were perfectly right and justified in going to the assistance of their former protégé when they did, acting not only in fulfilment of their moral obligation to support the threatened republic they had set up, but also as agents of the United Nations, who represent and uphold the acknowledged principles of international conduct.

That is true so far as it goes, but it is not the whole truth.

According to the present line-up, the real quarrel is between the Eastern communist States and their satellites on the one hand and the Western democratic States on the other. The former include Russia, with her satellites, and China; and the latter include the signatories of the Brussels Pact and of the North Atlantic Treaty and nearly all the United Nations.

People say it is a "clash of ideologies," communism opposed to democracy; and so, in a sense, it is. But that is not by any means the root cause of the quarrel. However passionately they may hold their beliefs in one form of government or another, whole nations do not go to war in order to spread those beliefs without some other incentive; though they will fight to defend their way of living against an aggressor who threatens to change it for them.

Others say it is due to the old Russian imperialism, familiar when the Czars

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reigned in Saint Petersburg and now revived by the communist government in Moscow. There is something in this, too, but not everything. The Russian people, though easily inspired to fanatical devotion to a cause in which they believe, are not naturally aggressive; and we must look deeper for the root cause of Russia's present aggressive foreign policy.

Though the quarrel is certainly between the Western democracies and the Eastern communists, it is not necessarily an ideological quarrel. These two parties represent the "haves" and the "have-nots," i.e., those on a higher standard of living and those on a lower standard of living. India and Pakistan may be regarded as exceptions, being on the lower standard but siding with the Western democracies; though it is not yet certain which side they would take if a general war broke out. But, generally speaking, the division is between those on a higher and those on a lower standard of living.

There are numerous examples in history of peoples accustomed to a hard and frugal life invading the territories of those who enjoy a higher standard of living. And it frequently happens that the people who enjoy the greater comforts become effete and lazy, disinclined to accept their responsibilities and therefore unready and unable to defend themselves against the more virile people who attack them. The best example of this is, of course, the barbarian invasion of the Roman Empire which heralded its decline and fall.

It is possible that we are now witnessing the beginnings of a repetition of this periodical uprising of the "have-nots" against the "haves." If so, that is one of the fundamental explanations of the present international quarrel, of which the war in Korea is an episode.

We need not conclude that, because the Roman Empire collapsed before the barbarian invaders, the Western democracies will collapse before the onslaught of the communist invaders. The Roman Empire did not collapse all at once. It took a very long time to disintegrate. And there is no reason to expect a sudden collapse of the Western Powers, nor need we assume that they are doomed to succumb to communism in the end.

For, in the first place, history never repeats itself exactly; and, in the second place, the Western Powers have advantages over their opponents that Rome never had over the barbarians. The Western democracies are highly industrialized; whereas the communist nations (except Russia) are much less so, and Russians and Chinese are not, on the whole, mechanically minded. The United States of America and the younger nations of the British Commonwealth are in the full flush of early manhood, while Britain and the nations of Western Europe may be regarded as still in the prime of life. Nor are there any signs that the Western nations are becoming effete.

Nevertheless, it may be well to consider, in passing, whether the peoples of the Western world are justified in enjoying their high standards of living while there are so many in the world who live on or near the starvation line. But that is an ethical or religious question and not strictly relevant to the present discussion. President Truman's fourth point (industrial aid to under-developed countries) would, however, appear to meet this challenge.

There is yet another factor to be taken into account before the picture is complete. Lack of this world's goods and comforts does not by itself produce aggression or revolution. It needs first to be fanned into envy and then it needs leadership and direction. The Russian peasant may live on a lower standard than the people of Western Europe and America, and the Chinese certainly do. But, if reports are to be believed, knowledge of what the West enjoys is purposely kept from the Russian peasant by orders of the Kremlin, and probably the

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Chinese are not interested. How, then, is anti-democratic feeling stirred up? Obviously by communist agitators. And why?

Here we touch upon another fundamental factor which lies at the root of the present trouble. There are certain men who have an irresistible urge to gain and to exercise power. They must have power over the lives of thousands and millions of their fellow men. And in order to gain and to keep this power they must find some principle or ideology that will appeal to the people whom they wish to dominate. They themselves may or may not be interested in the principle or ideology for its own sake—any one would do, so long as it brings them to the top and keeps them there—nor are they careful of the lives of their people, otherwise they would not sacrifice them so ruthlessly in wars to extend their dominion.

Napoleon rode to triumph—and disaster—on the waves of the French Revolution. He sacrificed thousands and thousands of lives on the altar of his personal ambitions; and he left France smaller and very much poorer than she was when he first became leader of her armies.

It is always the same. Italian fascism, German nazism, and now Russian communism: all are ideologies used by unscrupulous men with soaring ambitions to enslave the credulous multitudes and bend them to their wills. The ideology may be good or it may be bad; but the present danger is from those who use an ideology as a means to world domination.

What could be easier than to go to a people who live near the starvation line, to promise them substantial rewards in better living conditions, more and better food and a generally higher standard of life, and to give them an ideology such as communism as a focus of their longings and a justification for aggression?

This is what Joseph Stalin and his fellow members of the Politburo have done and are doing. They may have improved the lot of the Russian proletariat. If so, they are to be praised for this humane exercise of their despotic powers. But it is characteristic of despots that they cannot stop. Their ambition knows no limits. It carries them on until they crash and bring down half the world in ruins with them.

Personal ambition for power, and fomented discontent which it uses as a means to an end, these are the fundamental causes of the present international tension. They form the background to the war in Korea, to the operations of Chinese bandits in Malaya, to the hostilities in French Indo-China, and to the "cold war" wherever it is being waged. And they will be the background to the Third World War, if it comes.

That is what the peace-loving Western democracies are really up against. And that is why they are beginning to take decisive action. For appeasement is no good. Dictators lusting for power and drunk with success are not to be appeased. Only one thing will stop them—superior force.

Until the men who are stirring up the communist fanatics are put where they can do no harm the world will know no peace, nor will the standards of living be raised.

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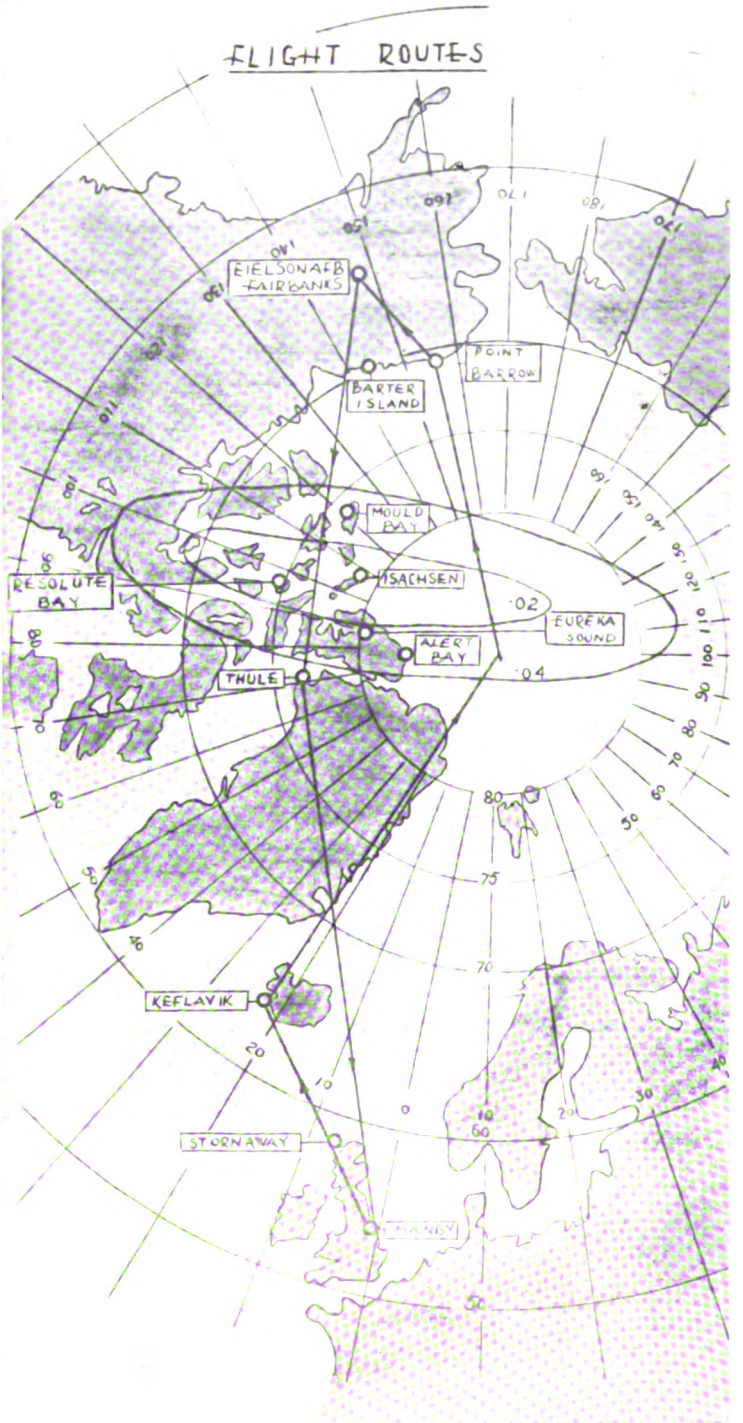

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R.A.F. FLYING COLLEGE NORTH POLAR FLIGHT

By Squadron Leader J. L. Mitchell, M.V.O., D.F.C.

INTRODUCTION

THE Royal Air Force Flying College was established in 1949. It might well be called the College of Military Aviation, for its aim is to produce the air commander of the future. During a course of training lasting one year the students, who are experienced pilots and navigators, study all aspects of the operation of the aircraft as a weapon of war. Such an all-embracing syllabus calls for a knowledge of air operations (backed by practical experience) in many parts of the world.

The tropics are not new to the Royal Air Force; squadrons have been flying under such conditions ever since the aeroplane came into Service use. On the other hand, the polar areas were almost a closed book, both to the Royal Air Force and to military aircraft of other nations, until 1945. It was in that year that Aries, then an aircraft of the Empire Air Navigation School, carried out the first series of trans-polar flights ever made by the R.A.F. or U.S.A.F. aircraft. In the syllabus of the Flying College the students are introduced to the problems peculiar to operation in high latitudes by a number of navigation exercises, together with liaison flights to the Alaskan theatre and to Canada.

During 1951 the Flying College carried out a number of twelve-hour navigation exercises over Greenland, flying out of Keflavik. It was decided to exploit the full range of the Lincoln Aries and create a longer exercise, made more valuable by landing at an Alaskan terminal after overflying the North Geographic Pole. In this way the Flying College has been able to give its members experience in the high-latitude aspect of world-wide military operations.

PREPARATION

The Aircraft

The present Aries was born a standard Lincoln bomber. She was modified soon after birth for long-range navigation exercises by removing the front and rear turrets and fairing off the nose and tail. The mid-upper turret was removed in favour of a second astrodome, and her fuel capacity increased to 4,600 imperial gallons by fitting three extra tanks in the bomb bay and one in the nose. With this tankage the maximum still-air range under optimum conditions is now about twenty-two hours, or approximately 4,000 nautical miles.

Route

The guiding principle in the selection of the routes was that they should offer maximum challenge to the crew consistent with safety. Keflavik was chosen as the point of departure in order to reach Eielson Air Force Base, twenty-six miles from Fairbanks, with an ample reserve of fuel. This route covered a distance of 3,090 nautical miles, and the flight took 18 hours 5 minutes. Homeward it was planned to fly non-stop from Eielson Air Force Base direct to Manby, in Lincolnshire, a distance of 3,600 nautical miles. This flight took 19 hours 35 minutes. These routes gave maximum practical distances in high latitudes, and included a long flight over areas of low, horizontal magnetic field strength.

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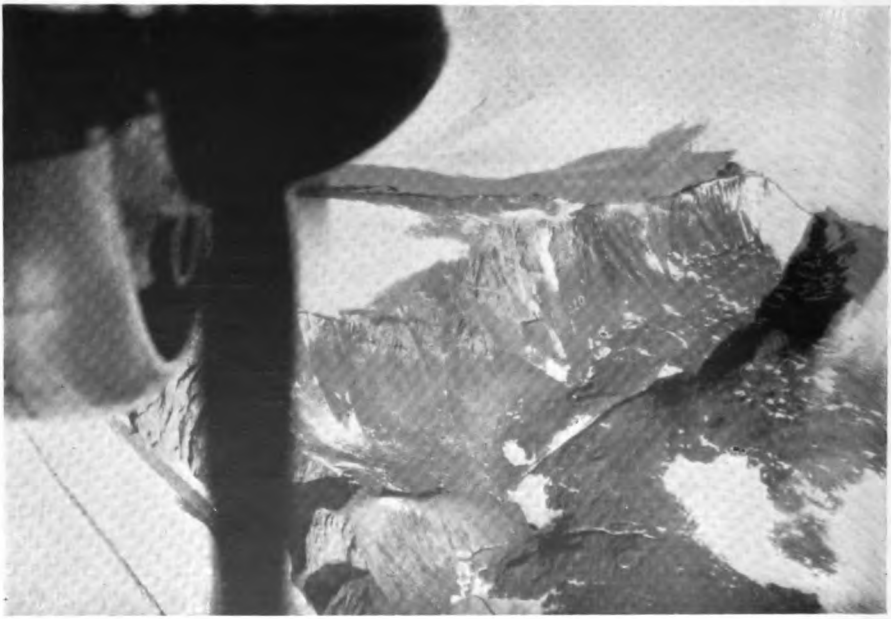
TYPICAL TERRAIN
Greenland—near Carlsbergfondet—76° 30′ N.—30° 00′ W.



TYPICAL TERRAIN
Greenland—Ymer Bjerge—77° 30′ N.—25° 00′ W.

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Navigation

The navigation problems of such a flight can be conveniently contained under two broad headings. Firstly, the problems of determining position, and, secondly, that of steering the aircraft. Fixing the aircraft's position had to be achieved primarily by celestial observation. The choice of dates for such a flight, during the summer period, was governed by the availability of the moon for use in conjunction with the sun. The required conditions for observation of the sun and moon with an aircraft bubble sextant are that their azimuthal separation should be between 60° and 120° and that their altitude should be greater than 5°. To satisfy these conditions the flight had to be made between 24th and 28th July (July was the month in which the exercises were fitted into the College programme).

Turning to the problem of steering. When north of latitude 65° north "grid" technique was adopted and all measurements of course and bearings made with reference to the Greenwich meridian, using a constant scale grid overlaid on Ney's Modified Lambert Conformal Projection. The gyro magnetic compasses were used for steering up to the edge of the .05 gauss field strength area, and thereafter, in field strengths below this figure, gyro steering only was adopted.

Weather Forecasting

The difficulties of forecasting for so long a flight over uninhabited areas can be appreciated when it is realized that above latitudes of 70° north only twenty reporting stations are available in the Western Hemisphere. The distribution of those lying within a hundred miles of the projected routes amounts to about one for every 370 miles of route flown. Upper air ascents in these latitudes are also few and far between, from Jan Mayen Island, Thule, Point Barrow and Resolute Bay. Radio sondes are also dropped from aircraft of the U.S.A.F. engaged on their regular ptarmigan flights to the Pole from Fairbanks. Below latitude 70° north—i.e., within Alaska, and from Scoresby Sound to Manby—the planned routes lay adjacent to several major air routes, and so those areas are reasonably well provided with meteorological reports.

As all information is passed by radio, periods of intense sunspot and aurora activity may delay the receipt of vital information required for briefing. With this communication handicap, the dispatching forecaster had to amalgamate the views of other weather authorities over whose territory we proposed to fly. Those concerned were the U.S. Weather Bureau Office at Keflavik (in conjunction with the Icelandic Meteorological Service at Reykjavik), the U.S.A.F. Weather Bureau at Harmon Field, Stephensville, Newfoundland, and Arctic Weather Control (U.S.A.F.) at Elmendorf Air Force Base, Anchorage, Alaska.

Radio Communications

It is hardly necessary to stress the importance of radio communication on a flight of this type. Its value lay mainly in position reporting from a survival aspect, but in addition weather reports and certain navigational assistance were to be expected in this way. To ensure the best chance of maintaining contact, alerting signals were sent to suitable stations during a prior visit to Iceland.

Safety and Survival

A very wide range of possibilities had to be considered, including survival at sea, on the Greenland ice-cap, in the tundra and on the Canadian Archipelago. Limitations of weight and space prevented the adoption of a liberal survival policy, but bearing in mind the assistance which was to be expected from the

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search and rescue aircraft in Iceland, Canada and Alaska, a balance was struck between the awkward problem of sacrificing fuel for an emergency which, it was hoped, would never materialize.

FLIGHT NARRATIVE
KEFLAVIK, ICELAND, TO EIELSON AIR FORCE BASE, ALASKA

24th July, 1951

From take-off the aircraft climbed well at full load, but after a period at 11,000 feet it was clear from the cloud build-up ahead that the forecast weather could not be avoided. By climbing to 18,000 feet the cloud was topped for a time, but eventually it closed in and light but persistent ice began to form. The aircraft was climbed to 20,000 feet in an effort to clear the cloud. Aries responded well but at the cost of a depressingly high fuel consumption. Quite suddenly, at about latitude 73° north, the upper cloud cleared and range performance began to improve as the ice broke away. At about latitude 75° north the cloud below ceased abruptly, revealing the majesty of the ice cap and the fiords leading to the sea. Visibility ahead seemed unlimited and it was possible to recognize Shannon Island away to the east.

From then on a slow descent was made to the best cruising altitude of 11,000 feet. No more low cloud was encountered until the McKinley Sea was reached and a clear view was possible of Danmarks Fiords. By the time the most northerly land of Pearyland had been passed the flight progress graph showed that the fuel consumption was rapidly improving as the aircraft got lighter—as was to be expected. Radio contact with Reykjavik, hitherto good, was lost and until we passed the Pole we were out of touch with the outside world.

Frequent glimpses of the Polar Sea were visible through the low cloud and luckily, ten minutes before the estimated time over the Pole, the cloud disappeared and a clear view of the polar ice was possible. There were no marked leads to be seen, although the ice was very broken. Thousands of small blue lakes of thaw water pitted the surface of the ice. Position was fixed at the Pole at 1030 G.M.T., within the limits of accuracy of our sextants and tables. On the flight deck it was hot and sunny and we flew in shirt sleeves. The stratus cloud closed in again about twenty-five minutes after leaving the Pole, but in patches was still thin enough to be seen through. As we flew farther from the Pole larger breaks in the ice were occurring, but the cloud was thickening ahead and beneath us, so that nothing more was seen of the Polar Sea on this outward flight. Half an hour after leaving the Pole, two-way radio contact on W/T was made with our destination, Eielson Air Force Base, and this was maintained for the remainder of the flight without difficulty. Later, radio contact was established on voice H.F. with Alert Bay radio at a range of about 550 miles. This is the most northerly meteorological reporting station in Ellesmere Land. Not getting much traffic, at least on voice frequency, the operator there seemed delighted to talk to someone!

Onwards to Point Barrow the fuel consumption continued to improve, and when 300 miles past the Pole it was quite evident that we should reach our destination with a considerable reserve in the tanks. Flight altitude was increased slightly to 12,000 feet to clear the thickening cloud below us, and soon layers of alto-stratus clouds were appearing above the aircraft. As we flew towards the coast of Alaska the weather got worse and we found ourselves flying in sleet and rain. We received clearance to enter the Alaskan Air Defence Zone at 13,000 feet; this kept us in and out of cloud, but well above the Brooks Range. Owing

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to this weather there was little to be seen of the ground below us, but the Colville River could be identified as we crossed it not far west of Umiat. As we let down to Eielson Field it was raining heavily, but with a good ceiling of 3,000 feet and reasonable visibility. The flight took 18 hours 5 minutes, about half an hour longer than we had estimated.

3rd and 4th August : Eielson Air Force Base, Alaska, to Manby, Lincolnshire

Owing to an enforced delay of a whole week in Alaska while we were involved in repairing an engine defect, the return flight had the disadvantage that no moon was visible. The luxury of sun/moon position fixing was lost.

Aries was airborne at Eielson at 1803 G.M.T. on 3rd August and a slow climb was made through layered cloud and rain to 11,000 feet. The inclement weather was cleared by Fort Yukon, and a good view was obtained of the Porcupine River. By the time the Richardson Mountains were reached—abutting the Brooks Range—the weather was brilliantly clear.

Meanwhile, two-way radio contact had been established with Eielson soon after take-off. This was lost after five hours out whilst in the vicinity of Melville Island, and only spasmodic and unsatisfactory contacts were made with various stations after this until Iceland was reached. At 25 minutes past midnight G.M.T. (now 4th August) voice contact was made on the H.F. wave with Alert Bay radio—this was from the vicinity of Bathurst Island at a range of about 400 miles. Once again the operator seemed delighted to hear us on the air with what must have seemed to him a most complicated call sign—Mike Mike Uncle Baker William—so very British!

The weather continued fine and below the aircraft was completely free from cloud. Mechanically all was going well, and the expected tail wind helped the appearance of the flight progress graph. It was fortunate that in the absence of low cloud we were able to get visual position checks, though the various scale maps used for plotting and map reading did not always agree in topographical detail.

Approaching Ellesmere Land the cloud associated with the Baffic low-pressure system was sighted; until then the flight had been made in clear conditions. As the extent of this weather was unknown, and to avoid any risk of picking up even a small amount of ice to spoil our fuel consumption figures, it was decided to climb before running into cloud, for the aircraft was by now comparatively light. The cloud was cleared at 21,000 feet and was found to consist of layered alto stratus and at times the ground was visible through it. From the south-eastern tip of Ellesmere Land it was possible to see the Wolstenhome Fiord on the Greenland side of Baffin Bay, and Cape Dunsterville to the north, a visibility distance of 150 miles at least. Visibility in Baffin Bay, too, was excellent, and the brilliant sunshine turned the icebergs and other floating ice into blues and greens of every shade.

The flight progress graph, although suffering slightly from the extra climb, showed that Keflavik was now within easy range, but we had difficulty in obtaining further meteorological forecasts. By now the sun was passing through north, and we could all say that we had seen the midnight sun (local time). Incidentally, in the course of this nineteen-hour trip the sun made one and a quarter revolutions of the aircraft! The east coast of Greenland was crossed at King Oscar Fiord, latitude 74° north and longitude 28° west.

Approaching the Faero Islands the head wind component increased considerably and began to offset the improved fuel consumption which we had been getting with the aircraft now lightly loaded. Messages from Reyjkavik indicated

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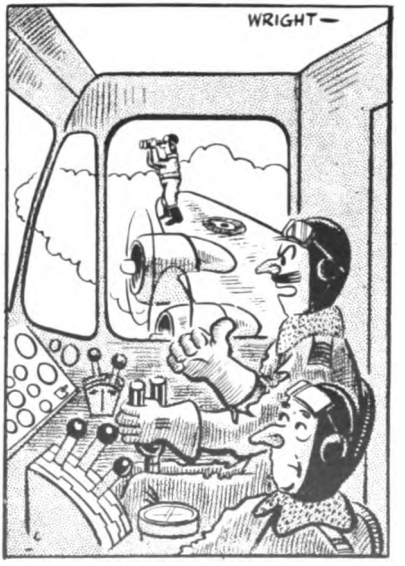
that at lower levels the winds would be lighter, so height was reduced to gain a maximum saving of fuel by a cruising descent over the last three hours of the flight.

From 10,000 feet downwards the descent continued in and out of strato-cumulus cloud, with the first visual pin-point of the British Isles at Cape Wrath. Thereafter we had odd glimpses of the ground when not in cloud or rain. Weather checks were made on various airfields by voice radio. Finally we were in touch with home base and we landed in rain after a flight of 19 hours 35 minutes.

CONCLUSIONS

The aim of the flight was achieved in that the exercise in polar navigation techniques was a success. A proportion of officers at the Royal Air Force Flying College not only increased their knowledge and confidence by putting theory into practice but also developed a wider conception of inter-continental military aviation. From the Service viewpoint nothing but good can result from such links between the R.A.F. and U.S.A.F. on opposite sides of the world. It was all fresh flying experience and the crew's knowledge of the physical geography and meteorology of these polar areas has been widened enormously.



"That new observer is certainly conscientious!"

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IMAGINATION AND THE TECHNICAL OFFICER

By Wing Commander E. J. Tippett, B.Sc., Ph.D.

"Man consists of body, mind and imagination. His body is faulty, his mind untrustworthy, but his imagination has made him remarkable."—*Somerset Maugham.*

A UNIVERSITY degree is tending to become an essential qualification for entry into the technical branches of the Services from civil life and, to an increasing extent, for entry into an executive career in industry and commerce. There are a number of very excellent reasons why university-trained men should be selected to hold posts of authority and leadership, and it is assumed throughout this article that it is fundamentally sound to do so, but the suitability of the actual university courses available is called into question and possible alternatives are considered.

CAPITULATION TO THE PHILISTINES

Traditionally a classical education at the university was regarded as a natural preliminary for the sons of the well-to-do who were destined to become the country's leaders in all spheres; but in this post-war, machine-dominated era a degree in science or engineering is more favoured. The young scientist and engineer is hotly competed for by Services and civil employers, while the classical scholar or arts graduate now has to seek asylum in the Church, the Foreign Office or the B.B.C. Why has the ousting of birth and privilege by brain and wit been accompanied by so drastic a shift of fashion, from the worship of ancient learning, with its appeal to the imagination and emotions, to an uneasy reverence for cold fact and precision? Why have the chosen people capitulated to the Philistines?

THE SOUL OF THE SCIENTIST

An obvious answer to these questions is that a university education in the humanities or arts does not fit a man to exercise control in a technical or practical organization, in which machines requiring specialized knowledge are used. This is so manifest that it requires no elaboration; but can it be accepted, *per contra,* that a course of science or engineering does fit a man entirely for such a vocation? This can be challenged certainly in the case of the engineer and with little less assurance in the case of the pure scientist. In gaining mastery of his machines the engineer becomes a devotee of soulless empirical data. He eschews absolute truth and his imagination atrophies while he becomes little better than one of his machines, marred by a few irrationalities in the form of human passions. Is such a man fit to control human beings, however technically they may be employed?

The pure scientist may not sell his imaginative soul outright; indeed in his initial quest for absolute scientific truth he believes himself to be on a higher intellectual plane than the engineer; but in this quest he comes to revere only demonstrable physical fact, so that his imagination slowly dies within him—unless he is one of the great ones. While the engineer cheerfully sells his soul to the Mephistopheles of machines, the scientist deludes himself into believing that he only pawns his soul while he woos science. He believes that he can redeem it later, but too often the pawn ticket is lost in the frantic struggle for facts, so that, ultimately, the scientist descends with the engineer into intellectual damnation; albeit tortured by the misgivings of a Faust.

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THE DILEMMA

Both scientist and engineer possess a mastery of facts and principles which are essential in the pursuit of deeper scientific knowledge and in the design of better machines. The research worker, the inventor and the designer must be experts, and the loss of their imaginative souls in gaining unquestioned mastery of their subject is, perhaps, a necessary sacrifice; they must be single-minded, even if somewhat narrow-minded. But the same deep knowledge of science or engineering is not absolutely essential, although perhaps desirable, in the technical officer or executive; there is a greater need for other qualities, which are apt to become stultified in the pursuit of this mastery of factual knowledge. It is erroneous to suppose that, just because a traditional university course in science or engineering produces good scientists or engineers, it provides necessarily the best training for men destined to become controllers and leaders of other men engaged in technical activities. The situation thus presents a dilemma, with the unpractical classics degree of tradition on the one hand, and the severely factual science or engineering degree on the other, neither providing suitable preparation for the young man training for an executive career in a technical or mechanical organization. Is it not possible to devise a more suitable alternative which retains the essential virtue of the university course but prepares young men more effectively for the tasks for which they are intended?

ESSENTIAL QUALITIES

Before this question is answered it will be well to consider what is required of the man for whom this training is sought. This presents difficulty, since it involves some examination of the idea of leadership which, like other imponderables such as morale and personality, defies coherent depiction, although it is readily recognized by nearly everyone. However, no undue addition to the incoherencies already written on this subject will be necessary if two main qualities are enunciated as essentials in our technical officers and executives:

(i) They must have sufficient knowledge of the working and the underlying principles of the mechanisms in the organizations which they control, to enable them to ensure that the mechanisms are worked and maintained properly. For convenience of reference this might be called the "technical quality."

(ii) They must be able to lead as well as control the men who work under them in working or maintaining these mechanisms. For convenience this might be referred to as the "humanistic quality"; for reasons elaborated below.

The first quality is well catered for under present systems of training, but the second is largely neglected.

The first quality demands a sound technical or scientific background, and the deeper the man's knowledge the better equipped he is for his job. But time and limitations to the receptivity of the human mind impose some compromise. In arriving at this, it must be admitted that few graduates use all their knowledge of science or engineering in an executive job, and most require specialist post-graduate training for the posts to which they are appointed. Particularly are these facts true of the Services. There is no doubt that science and engineering graduates are the better officers for their depth of knowledge, but they might be better officers still were their knowledge even broader, albeit shallower. Something less than the ideal intensity of scientific training can be tolerated if the imperfection thus caused can be made good by something more worth while. In

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the limit the minimum acceptable knowledge is that which will enable the graduate to succeed at his specialist post-graduate training, but descent to this limit is not desirable, nor, fortunately, is it necessary. The science or engineering graduate could, then, suffer some diminution in the depth of his training and still possess the "technical quality" in abundance.

HUMANIZING THE PHILISTINE

The "humanistic quality," involving as it does the power of leadership, is much more difficult to develop. The universities make little or no conscious effort to develop leadership, and wisely so, as it is probably just as futile to set out deliberately to tell a man how to possess such a quality as it is to tell him how to be any other than himself, or how to fall in or out of love. The universities, however, develop leadership implicitly and with conspicuous success, by providing an environment and intellectual atmosphere in which native and latent qualities are nurtured and cannot fail to mature; but they are not self-conscious about it. Anything which sharpens the wit and expands the mind develops character; thus a university course in any faculty must contribute to the development of the powers of leadership. Young men must benefit inevitably from sitting at the feet of masters and basking in the light of their intellectual brilliance, whatever the subject; but some subjects are likely to prove more effective vehicles by which to progress to the desired state than others.

Men who are to become leaders need wide interests and breadth of vision, as well as power of authority, so that they may lead those whom they control to a fuller life as well as to technical efficiency. They must be keenly aware that the men whom they control are not just super-machines with predictable reactions, but human beings whose actions are often irrational and whose reactions are largely governed by their emotions. How can a man who has lived his early adult life exclusively among cold facts and mechanisms possess this vision and emotional awareness? How can the obtaining of a degree in science or engineering, of itself, induce the right intellectual outlook for such tasks? If a man is to comprehend the complex personalities he has to control he must appreciate the graces of living as well as the means, and, above all, he must have a vital imagination. His university education, therefore, must be directed towards the development of his imagination and the appreciation of the humanities as well as towards technical competence.

A MARRIAGE OF ARTS AND SCIENCE

Clearly a university course in science or engineering fails miserably to develop the "humanistic quality," and the traditional arts or classics course fails even more hopelessly to develop the essential "technical quality." Why, then, should there not be a marriage between arts and science, a union blessed by the universities and invigorated by the fusion of two branches of intellectual prowess? A new generation of men motivated by scientific thought and method, yet possessing vital imagination, might then rise up to replace the segregated societies of the dull dogs of science on the one hand and the "airy-fairy" humanists on the other.

A NEW DEGREE

To this end, an approach to the universities by Services, industry and commerce might be made. The universities might be invited to devise a new degree course to effect this marriage and, being assured of the interest of bodies covering such a wide field, their response might well be favourable. A standard approximately that of a conventional pass degree should be aimed at, since there must

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A MARRIAGE OF ARTS AND SCIENCE

be no whittling away of academic standards, or the course will lack the virtue of a university education. This limits the number of subjects to four if the course is to be completed in the normal three years. The four subjects proposed are mathematics, physics or engineering, English and history. Mathematics is included because, not only is it an indispensable tool in the study of science and engineering, but it imposes mental discipline and develops intellectual integrity, which will help the student to keep a balance between his rational studies and those stimulating the imagination. The inclusion of physics or engineering scarcely needs comment, as this will provide the foundation on which any future specialization will be built. Pure science is preferred to engineering, as the former is likely to be the more successful in inducing the habit of rational observation, but the latter subject may prove more useful in some careers. The two subjects of mathematics and science or engineering, taken to pass degree standard, should give the future technical officer or executive a sound scientific outlook and should provide an ample background for any post-graduate specialist course he may have to undertake. These two subjects should provide the "technical quality."

From the variety of arts subjects which could be considered as agents for the preservation of the imagination, English and history have been selected as being within the scope of the average student who might have had a leaning towards science at school. Few potential undergraduates will have left school without approaching general school certificate standard in these subjects; most students therefore would be capable of undertaking a university course in them, even though they had paid more attention to science before entering the university.

A three-year course in English at university level would stimulate and establish in the mind of the adult student an interest in and appreciation of his language and its literature, which the discipline of school had failed to awaken in the adolescent mind. What the adolescent had read and learned under protest, the adult, properly guided, would absorb with relish, to the great enrichment of his mind and personality. Similarly, history, anathema to the unimaginative schoolboy, would be vitalized for the adult student by the learned don so as to present a coherent picture of the processes by which society has progressed to its present state. As the historians rightly ask, what better equipment is there for the assessment of the present than an appreciation of the past? A young graduate, then, with his imagination fired by a fairly intimate acquaintance with a rich

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literature and stimulated by an understanding of the past, should be imaginatively alive and emotionally alert as well as technically competent. He should possess in some measure the "humanistic quality" as well as an ample measure of the "technical quality." He would be able to proclaim with Robert Browning:

"How good is man's life, the mere living!"

PRO AND CON

The proposed new degree course is open to criticism from both sides of the house. The scientists could claim that the offspring of this alliance would be only half scientists and the humanists could affirm that they would still be semi-Philistines. There would be some justification in these criticisms from the academic point of view, but it must be remembered that the ultimate vocation of the new graduate is not to be a scientist or engineer, or a master of the arts, but to be a leader and controller of technicians who are also irrational human beings. Surely a graduate from the proposed course would be more competent than the scientist or engineer for such a task, by virtue of his possession of the "humanistic quality." Who knows how many disturbances in technical or industrial organizations do not owe their origin or continuation to lack of imagination in the executives? The case for a marriage of arts and science has already been established by precedent in the Services, for in the cadet colleges a study of the arts goes side by side with a study of scientific subjects. Why should a principle which is sound in the training of our flying and military officers not be sound also in the training of our technical specialist officers?

There should be no shortage of students for the proposed new course, for its graduates would be fitted for careers in the Services and in many branches of industry and commerce; they might even be suitable for some branches of the teaching profession—a very wide field. Indeed, many students who now take a full course in science or engineering would be better suited by this new degree course; thus the pressure on the science and engineering faculties of the universities would be relieved. Further, some arts or classics graduates, who now find their way into non-academic careers, might be the better servants to the country were they endowed with a measure of scientific outlook which this course could give them. Imagine a parliament in which scientific observation and objective reasoning predominated!

From the general trend of this article some readers might be tempted to conclude that all that is wrong with our technical officers and executives is that they are too technical or scientific. Let this misapprehension be corrected emphatically. It is impossible for any man engaged in an occupation associated with science or engineering to have too deep a knowledge of those subjects. Further, it is essential that he should possess the habits of scientific thought and method. No: our technical leaders are not too much masters of their techniques; they are insufficiently imaginative, and it is solely to correct this deficiency that some sacrifice of scientific training is proposed. We want our leaders to be able to lift their heads into the clouds at times, but we must insist that their feet are always firmly planted on the ground.

[*In the Anglo-American Productivity Council report "Education for Management" (which appeared after this article was written), the question of training potential executives in the technique of management is examined. Such training will make it all the more important that suitable fundamental education ensures the vitality of the imagination, before it is subjected to the risk of extinction by techniques; for "where there is no vision, the people perish."*]

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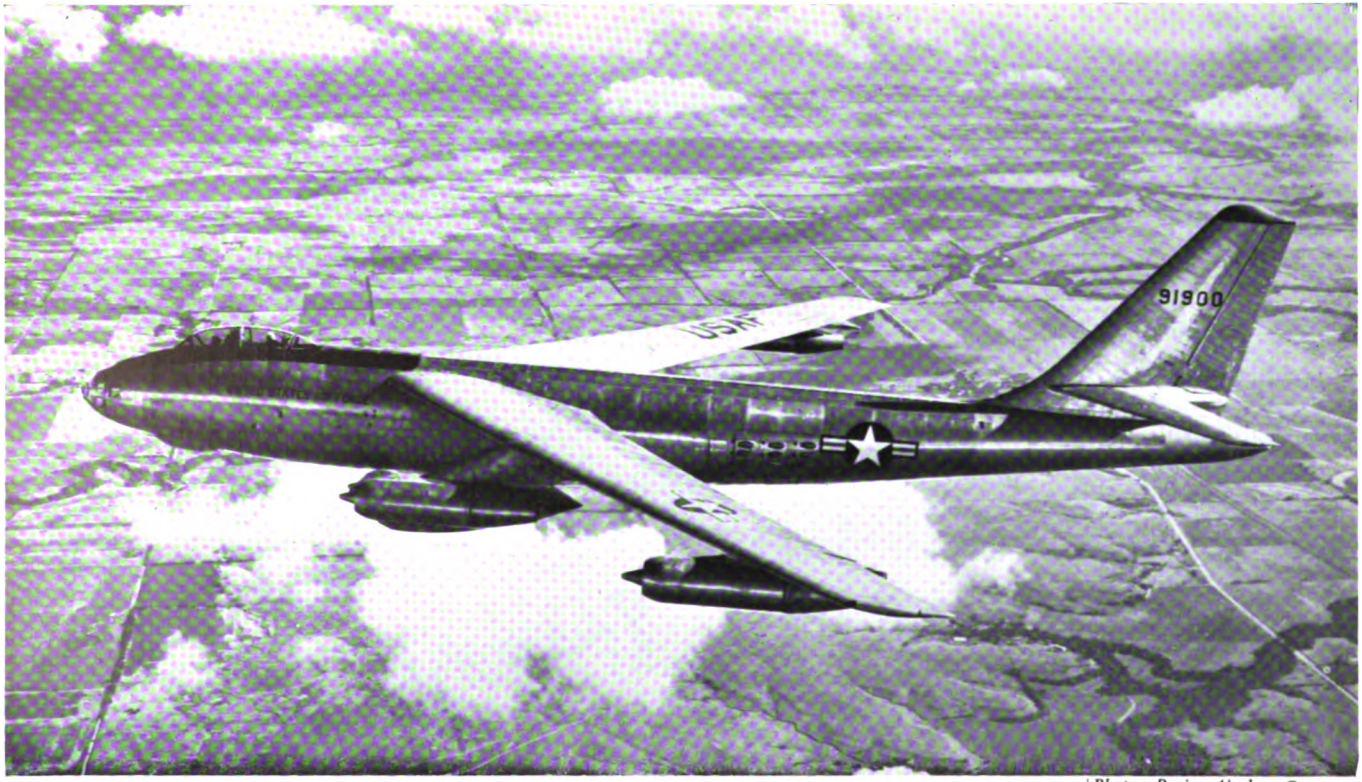

[Photo : Boeing Airplane Company

THE BOEING B-47 STRATOJET BOMBER

Powered by six General Electric J-47 turbo-jet engines, has a speed of over 600 m.p.h. and can carry more than 10 tons of bombs at an altitude exceeding 40,000 feet. Deliveries to the U.S.A.F. have begun

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THE FIRST LINE OF OFFENCE

By Flight Lieutenant G. W. Waddington, D.F.C.

BRITAIN'S first line of defence is the Royal Air Force. This significant change of policy followed shortly after the end of the Second World War, and since then very little has been done to enlarge upon the statement and all that it implies.

For the general public the word "defence" means the provision of fighters to prevent enemy aircraft from violating the air over this country—in the best tradition of the Battle of Britain. Fighter Command have not been slow to take advantage of this conception and we have witnessed the complete re-equipment of the Command with jet fighters. Some squadrons have had more than one change of aircraft and the auxiliary fighter squadrons have also been re-equipped with jet aircraft.

Few will deny that as a whole the British race are a peace-loving people; aggression in any form is the furthermost thought in our mind, and, although we champion the cause of right, and in extreme cases go to war in support of that cause, the instinct to protect both country and self from any form of attack has been bred into us over many centuries. Our traditional role of being the world's policeman has, for economic reasons, been slowly but steadily taken over by America, and while many people accept this with the changing times few seem to regret it; some are even glad.

In itself, the use of the word "defence" engenders a wrong attitude, for it implies that we should make this island of ours as secure from attack as possible and suggests that our shores and the air above us are our only concern. This defensive outlook, if pursued to its logical conclusion, suggests that a strong fighter defence and control of our sea lanes should suffice for all our requirements.

These things are necessary—to a degree—but from a defensive point of view it represents a negative attitude and gives no thought to the other aspects of defence, namely offence. Militarily the two words are inseparable and are admirably summed up in the well-worn but true saying: "The best form of defence is attack." Some of our best-known leaders in the Royal Air Force have put it more simply: "It is no use having a goalkeeper if there are no forwards," or: "Of what use is a boxer who has a good guard but no punch?" And so, when it is said that the Royal Air Force is Britain's first line of defence, it should be remembered that it is the first line of offence also. In the event of the outbreak of hostilities the offensive arm of the Royal Air Force is the only means whereby a blow which hurts can be struck at the enemy within a matter of hours. What, then, is the offensive potential of the Royal Air Force at present? In contrast with Fighter Command the situation is not very good.

It is no secret that Bomber Command squadrons are still largely equipped with the war-time and now obsolescent Lincoln bomber. New blood has been injected in the form of American B29 bombers, rechristened "Washingtons," an aircraft which is more advanced than the Lincoln but which has been superseded in America by more advanced types, such as the Boeing B47. There are a few Canberra jet bombers, but one can hardly say that Bomber Command has "squadrons" of Canberras, fully operational. Thus the over-all picture is not bright. For obvious reasons the Canberra is only an interim type and without a

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[*Avro Photograph*

The Avro Lincoln

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modern, long-range, four-engined jet bomber how can the Command train for the future? As far as the major proportion of Bomber Command is concerned it might be said that very little new is being done. Day-to-day flying, training and tactics are almost as they were at the end of the war.

Why is this? Why is Bomber Command at such a low ebb? Why does the future seem to hold out so little promise for the provision of a modern "first line of offence," without which the Royal Air Force cannot hope adequately to fulfil its over-all tasks of providing the first line of defence? There are several reasons which may be advanced to answer these questions; they may or may not have had a deciding influence in determining the future of Bomber Command.

Inevitably, there had to be a period of waiting at the conclusion of the war before any new bombers were introduced into service. The Services as a whole were demobilizing and the aircraft factories switching over to peace-time production in an effort to make up for the lost ground in the field of civil transport aircraft. At that time the Lincoln was quite new and there were enough for our current needs. Also investigation into the use of gas turbine engines in bomber aircraft was under way and it was prudent to wait and see how its development was going to affect bomber types.

Another factor to be considered is that at the end of the war Russian intransigence in world affairs had hardly begun to be felt. There was good reason to suppose that we had plenty of time in which to remodernize our aircraft and, using the latest scientific and technical developments, could produce, at our own convenience, aircraft which would give us immediate superiority over those of any other nation. This policy may have been a reflection of pre-war policy, when, for the purposes of planning, a period of ten years was given during which it was confidently assumed that no war would occur. This period, as we know now, was extended and re-extended and as a consequence our aircraft development proceeded at a leisurely pace.

From an economic aspect we ended the war as a poor nation and the cost of re-equipping Bomber Command was one which could hardly have been justified in the immediate post-war years, when the prospect of a new war was as remote from our minds as it is now near.

All these are good and potent reasons why the Command has had to make use of its war-time aircraft. However, the war has been over for close on seven years; meanwhile the idea of the three great nations of the world living together in an era of political harmony has not been realized. Russia has made it perfectly plain that she intends to co-operate as little as possible with her war-time allies and is willing to go to extreme length to achieve her aims. Already, according to various authorities, Russia is building up her forces to an alarming degree, and even the combined forces of the countries of the North Atlantic Treaty Organization are not yet in position to offer decisive resistance.

To this situation must be added statements made by both President Truman and Mr. Churchill to the effect that the Western Powers intend, in future, to "bargain from strength." While General Eisenhower's armies expect to be considerably strengthened by the end of 1952, the Royal Air Force, which has a vital part to play and in particular Bomber Command, seems to have had little attention. On the other hand, the United States Air Force, especially its strategic bomber arm, has been considerably strengthened. Is this another example of handing over our responsibilities to the Americans? Perhaps the Americans are eventually going to assume over-all responsibility for strategic bombing? In a speech at the Mansion House on 19th April, 1951, the Chief of the Air Staff said: "So long as the world is in the state it is today it is our ability to strike

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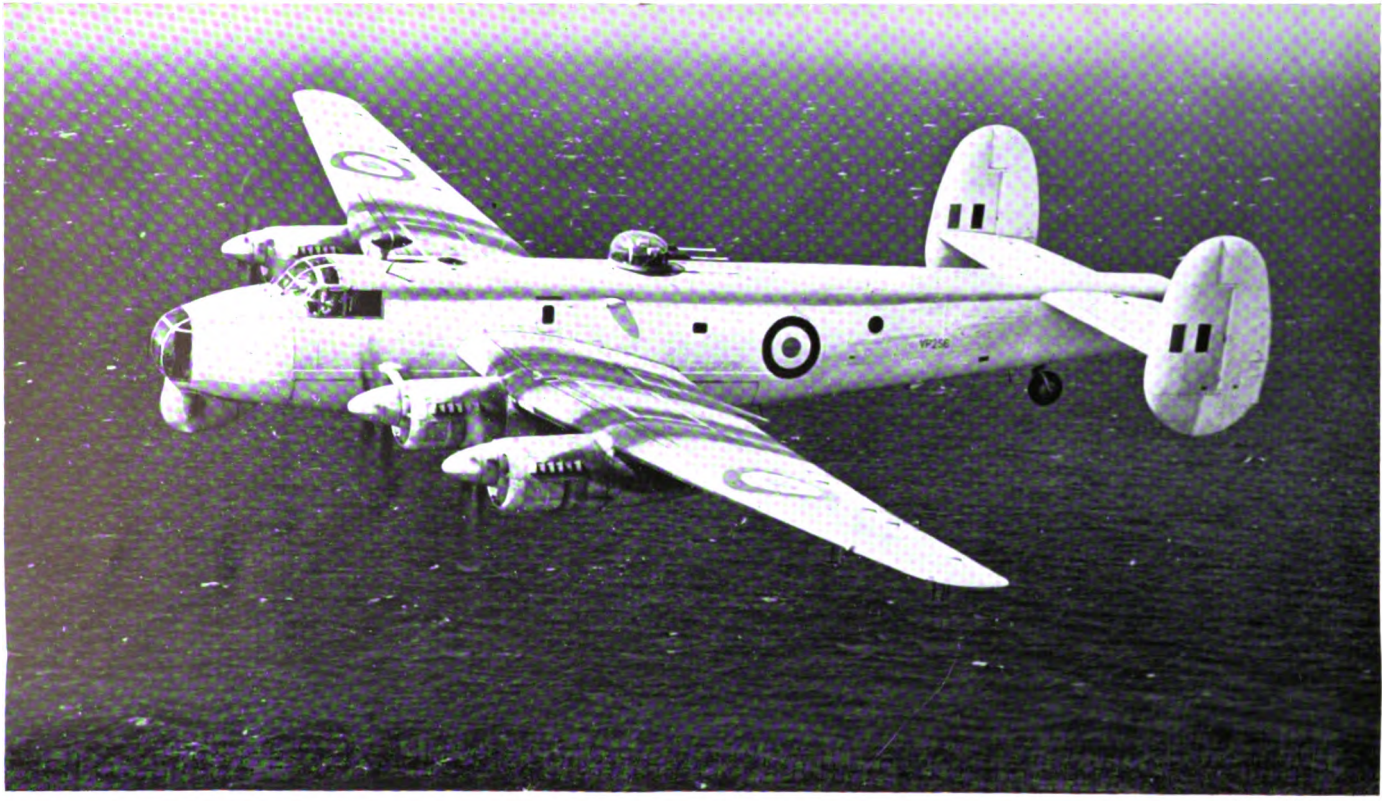

[Avro Photograph

THE AVRO SHACKLETON

In service with Coastal Command, it is an anti-submarine patrol aircraft with very long range, formidable armament and extensive radar search equipment

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back, instantly and overwhelmingly with the bomber, that is the best safeguard of peace and the soundest guarantee of victory if war is forced upon us."

He also said: "For the present that ability is in the main confined to the U.S.A.F. Bomber Command for some years to come is and will be primarily a tactical bomber force. As such it has a vital part to play in the defence of Western Europe, and it will be mainly used in support of the Supreme Commander for that purpose. But that limited role has been forced upon us temporarily by circumstances and does not represent a permanent policy."

The question is: What are the circumstances which have forced this policy upon us and how long will they last?

There is a further problem which affects any re-equipment of Bomber Command. Just as the dividing line between the manpower needs of industry and those of the Services is very finely drawn, so equally fine is the division within our aircraft industry between the production of civil and military types of aircraft. The demand for the De Havilland Comet and Vickers Viscount airliners have shown how this delicate balance is likely to be upset in the future. Contractors for these and other aircraft types have received overseas orders amounting to millions of pounds, and many of these are valuable dollar earners. At a time when the economy of the country is in such straitened circumstances, and we are unable to close the gap between our imports and exports, are we to sacrifice such a valuable contribution to the national economy in favour of the development and production of new military aircraft, particularly bombers?

On the face of it, it would seem that we cannot afford to have a modern Bomber Command and yet surely we cannot equally afford to be without one, in view of the present world political set-up. Bearing in mind the analogies of the football team and the boxer and considering the magnificent contribution made by Bomber Command in shortening and ending the struggle against Germany, the offensive potential of the bomber cannot be ignored when it comes to a question of "bargaining from strength."

This present period, then, and the years immediately ahead would seem to be the right time to raise the Command from the doldrums. How is this to be done without upsetting the balance within the aircraft industry? Or, rather, it *must* be done without affecting the output of civil aircraft.

When compared with Bomber Command the present state of Fighter Command, as regards both numbers of squadrons and types of aircraft in use, is good. Cannot, therefore, a halt, or at least a retardation, be called in this direction in favour of modern bomber production and let the see-saw, now heavily weighted down at one end, gently fall down in the opposite direction over a period of, say, five or six years? During this period Fighter Command would not be neglected; on the contrary, it is visualized that fighter research and development will go on and that possibly one or two prototypes may achieve limited production. This safeguard is necessary in order that a few squadrons would have the necessary aircraft with which to continue the high-speed battle, and also to ensure that an up-to-date fighter is available for rapid and expanded production should the military or political situation demand it. Any large-scale re-equipment of Fighter Command during this period, however, would not normally take place. No plea is made for building up a large Bomber Command; on the contrary, let it be smaller even than the present one. Size does not greatly matter so long as the aircraft are up to date, capable of waging war at adequate range, experience in operating pure jet or prop-jet bombers is obtained and there is developed a hard core of skilled and knowledgeable flying and ground personnel on which to build should war occur.

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A further reduction in the size of Bomber Command immediately raises the problem of the future of the flying personnel already in the Command and how the discarded aircraft, old as they may be, can still be used to the best advantage, to say nothing of minimizing the effect of the policy on the flying training establishments.

Here is an ideal opportunity to give Coastal Command a much-needed boost. Their need for a more advanced type of aircraft is not so great, yet their role of protecting, in company with the Navy, our vital sea lanes from submarines and surface raiders is likely to be made more difficult and important than ever in the future with the advent of the Schnorkel submarine. The Lincoln aircraft, fitted with modified engines for low-level flying, could easily be adapted for this type of work. It has a good range with a reasonable load of either bombs or mines, it has plenty of room for the fitment of radar devices, and its armament is likely to be useful. Thus an over-all economy would be achieved and the output and training of the flying training schools would be virtually unaffected.

Once the re-equipment of Bomber Command had been effected the see-saw could be allowed to swing down in the direction of Fighter Command for a period of, say, four to five years and fighter production would again take precedence. It is obvious that our present and probably our future economic and industrial requirements will not permit us to do everything at once, and if we are really to have an effective offensive side to our first line of defence some concession must be made in favour of the bomber.

As Mahan says: "It behoves countries whose people, like all peoples, object to paying for large military establishments to see to it that they are at least strong enough to gain the time to turn the spirit and capacity of their subjects into the new activities which war calls for." The crucial part of that statement is "It behoves countries to see to it that they are strong enough to gain the time." In this respect an up-to-date Bomber Command is essential.

As a final talking point, there is another way in which Bomber Command can be re-equipped without affecting our economy and civil aircraft production. It is significant that, although the United States Strategic Bomber Force has been considerably strengthened, both in numbers of groups and with new aircraft, it is largely composed of piston-engined types. These are high-flying and fast when compared with British types, but slow and vulnerable when contrasted with the possibilities of a multi-jet bomber. Their sole advantages at the moment seem to be good range and load-carrying capabilities.

In the civil aircraft production field the De Havilland Comet and Vickers Viscount have given Britain several years' advantage in design, development and research into the problems of operating four-jet aircraft. One cannot help wondering, in these troubled times, if, by tacit agreement and for reasons of economy, the development of jet bombers has been recognized temporarily as a British sphere of interest, provided that we exchange technical information. It is also significant that the Canberra jet bomber was flown to America.

If this is so, then it is possible that the production models of recent jet bomber prototypes may find their way to British bomber squadrons, financed by the Military Aid programme and via American factories!

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LEADERSHIP AND MORALE

By Squadron Leader Peter Caddy

INTRODUCTION

DYNAMIC leadership, with the resultant raising of morale, is the greatest need of this country. Upon a fuller examination it will become evident that the qualities required for such leadership are essentially moral and spiritual in nature.

The democracies lack not only leadership but the potent ideology with which their enemy is armed. In democratic countries this lack of this positive faith creates a vacuum in which Communism flourishes. Not only can leadership raise the morale necessary to withstand this onslaught but it can lead the country to rearm morally and spiritually as well as materially in defence of her threatened liberty.

THE NATURE AND EFFECT OF LEADERSHIP

What are the nature and effect of leadership? They are primarily a gift of character which can be developed but not created. Leadership is a quality of the soul. In the words of Emerson, "Who has more soul than I, masters me, though he should not raise a finger. Round him I must revolve by the gravity of spirits. Who has less, I rule with like facility." It is through its leaders that the human race has stepped up the ladder of evolution. Such leaders can inspire man and draw out his inherent qualities of greatness, courage, faith and initiative. They can co-ordinate and harness all his faculties and energies, thus liberating the individual to express his maximum capabilities. This liberation in turn binds him to his leader.

QUALITIES REQUIRED OF A LEADER

In considering the qualities required of the leader it will be evident that first and foremost there must be self-mastery. Lack of this essential foundation to a strong character will hamper or even nullify whatever other qualities of leadership a person may possess. From self-mastery springs self-forgetfulness and unselfishness. The secret of such leadership is revealed in the words "Whosoever would be first among you shall be the servant of all." Self-mastery is the prerequisite to this ability to dedicate oneself wholly to service.

Secondly, the leader must have the ability to inspire others. There is in all men, even the lowest, a spark of the divine, something which is capable of rising superior to pain and loss, superior to seeking after gain, superior even to death. The true leader evokes this. Montrose appealed to that god-like something in his rough soldiers so that they followed him blindly. Not only must a leader fan the flame of the divine in his followers but he must inspire their perfect confidence in himself and in his undisputed authority. This requires a strength of character that will dominate others.

Thirdly, a leader must have moral courage, which is often preached but rarely practised. The final test of moral courage is the ability to stand alone and to take sole responsibility for one's decisions. A striking example of this can be seen in the decision which rested with General Eisenhower as to whether or not to postpone, owing to unfavourable weather conditions, the invasion of Normandy.

Fourthly, there must be fortitude and resoluteness, the power to endure sufferings, hardships and reverses unflinchingly. Courage is the quality necessary for

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attack. Fortitude or resolution is the quality necessary for endurance. Both are essential to leadership. Churchill's memorable speech on the eve of what seemed to the onlooker absolute disaster has already become an immortal example of fortitude. It might be pointed out here what an effect one great leader can have on a situation. Britain was at her lowest ebb, disaster seemed inevitable, and all she was promised was "blood, sweat and tears." Yet such was the power of her leader, such was his inspiration, courage and fortitude that the whole nation rose at his call to face with a similar courage and resolution whatever the future might bring.

Finally, the majority of great leaders have been aware of a sense of mission, which has been the driving force of their lives. This sense of mission seems to arise in the heart of a man who sees a need to be met or a work to be done, for which he feels himself to be especially fitted and chosen. It is this sense of mission that fortifies the will to achieve the aim regardless of hardship, obstacles or even seeming impossibility. Field-Marshal Montgomery has said: "If a commander has a righteous cause and gives his soldiers success, he will gain the complete confidence of his men: and then there is nothing he cannot do."

These qualities of the soul require adequate development of the heart, mind and body through which to express themselves. If the latter become degenerate through power of corruption, the leader, no matter how great his qualities of leadership, is bound to deteriorate.

The heart must be developed through experience, sensivity and imagination in order to have the necessary understanding to handle men and their affairs wisely. The following attributes are by no means exclusive to leaders, but they are necessary for effective leadership. One is sympathy, which may be described as the opposite of that magnetic quality in a true leader through which he can make his followers identify themselves with him, his will and his aim. Sympathy, on the contrary, enables him to identify himself with them, with their needs, their outlook and their way of thinking.

Another heart quality essential to the good leader is loyalty, loyalty both to his superiors and his subordinates. John Buchan, when writing of Montrose, said: "Loyalty is one of the greatest of our mortal virtues, and loyalty is not devotion only to a cause but to men, or to a man in which the cause is embodied." Abuse of those above and criticism of orders received from superior authority always recoils eventually on the critic and undermines his authority with those below him.

The intellect of a leader must be sufficiently developed in order to maintain intellectual superiority over at least the majority of his following. A stupid man can never be a great leader. Nevertheless, many a poor scholar in early life turned out to be a great leader. To mention only a few: Eisenhower, Roosevelt, Einstein, Edison and Churchill were all considered of poor-to-average intelligence at school.

THE NEED FOR MORAL AND SPIRITUAL LEADERSHIP

This century stands out from the past as one of change, upheaval and disintegration in every department of human life. Science has moved forward by leaps and bounds and changed our whole manner and tempo of living. War has disrupted the stable pattern of Victorian England, opening the door to so-called "free thinkers," who, in the vacuum of discarded religion, have sown the seed of many "isms," societies and creeds. Social disruption has followed. Implicit loyalties have been forsaken and the motto has become "Self-service." Not only nationally but internationally is this state of flux and chaos prevailing. Solemn

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agreements are repudiated. Promises are made without any intention of fulfilment, and the accepted usages of international diplomacy have been spurned.

Surely in such times as these the great need of this country, as well as of the world, is for leaders with unshakable convictions who will harness the energies of the people into constructive purposes and who will light their souls with the ideals they have lost. The urgency of this need is underlined by the state of the world today. It is being divided rapidly into two belligerent camps, each with an opposite way of life, conflicting principles and opposing policies. On one side is the ardent ideology of Communism which is incessantly practised and preached —with a goal towards which all plans, all energies and all activities are directed. This challenge to authority, to the accepted religions, becomes increasingly strong, enticing the adolescent and the idealist as well as the disaffected. In this camp everyone is either a whole-hearted and implicit follower or is coerced into an abject obedience.

What opposes this potent force? Where is the faith to combat this ideology? "It takes a faith to defeat a faith," and we shall never defeat the faith of Communism unless we have a faith more real and dynamic. It is the belief of the writer that Christianity is that faith, for through this faith Britain has risen to her greatest achievements, and without its guidance and inspiration she is bound to fall from her position of moral leadership in the world. Mr. Arthur Bryant, the well-known historian and writer, in a lecture on "British Character" at Cheltenham in 1950, said that in his opinion by far the most important factor in the forming of the British character was the daily reading of the Bible. This reading of the Bible has now almost ceased. We are living today on the spiritual capital accumulated in our years of greatness. General Sir Bernard Paget, in his opening address to the courses held at Ashridge, affirmed that our great Christian heritage, which has been handed down from generation to generation, is being dissipated; thus we are undermining the greatest bulwark against Communism in the world today.

The qualities of leadership may lie dormant until awakened by some great need or emergency. There can be no doubt that the conditions existing today urgently require qualities of leadership perhaps to a greater extent than ever before. These conditions have produced such leaders as Churchill, Eisenhower and the outstanding men in our three Services. But leaders are all too few and are insufficiently backed because of the lack of leaders at all levels of the community, in industry, government, education, as well as the Forces. The qualities are no doubt there, but the urgency of the times is not sufficiently realized, nor is the desperate need for these qualities made clear to the nation. The man in the street pursues his lethargic way wrapped comfortably in the blanket of the welfare state and sustained by the soothing syrup of specious promises. His myopic eyes are unaware of the storm that threatens not only his welfare but his very life. He is like a sheep without a shepherd, a boat without a rudder, a compass without a needle.

The Christian way of life in this country has been handed down from generation to generation. But the youth of today has been robbed of this inestimable advantage by two world wars which have impoverished the lives of their parents as well as themselves. These youths are Britain's coming generation and her destiny is in their hands. They have been brought up in broken homes with little or no family life. They have been evacuated from blitzed homes and cities to new and strange surroundings. The resultant malaise has sprung from the individual's sense of no importance, of not being part of a pattern and, probably most significant of all, of not being necessary to anyone or anything. This belief, which

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is indeed the exact opposite of the teachings of Christianity, breeds the evils which are so rife amongst the young people now in their late teens or early twenties. They have left whatever homes they had and are now forced to spend two years in one of the three Services. We, as the older generation, must accept some responsibility for the state of the world in which they spent their childhood. The three Services are thus given the unique and far-reaching opportunity to discharge this responsibility.

A PATTERN, AND ITS PRACTICAL APPLICATION BY THE COMMANDER

Having considered the spiritual and moral aspects of leadership, let us conclude by studying its practical application by the commander. As we have seen, this age has presented him with a bigger problem than his predecessors. He must be father and mother as well as leader and teacher to the young Service men in his charge. How can he accomplish such a task?

We have said that the Founder of Christianity gave us the supreme example of leadership. How did He set about His work, which has revolutionized world history? First of all, He prepared Himself by a complete dedication to His mission, by continually seeking God's guidance, and by setting an example that all should emulate. This can be followed in the Royal Air Force today by leaders at all levels. The commander also can thus prepare himself by putting his whole heart into his job, by daily seeking for guidance, and by setting an example to his men.

Jesus then chose a team, trained them, inspired them with His spirit, and put them to work in the environment prepared for them. The commander's second task, then, is to build up a team. He must have the right man in the right job. Those who are unsuited for their work must be replaced. The commander must understand and be understood by his officers and non-commissioned officers. This team must then be trained to work in harmony both with their leaders and themselves.

Having welded his officers and non-commissioned officers into a single team, the commander's next task is to create the right environment and atmosphere throughout his unit or command.

The most important condition is enthusiasm. You can do anything with a man who is enthusiastic. Those who wish to inspire others with vitality and enthusiasm must themselves possess these qualities. Men cannot be talked into enthusiasm; they can only be infected by it.

He must then build up *esprit de corps*. The real leader inspires his men to a pride in themselves and in their unit. This can be helped through drill and parades, particularly with a band, and team games. Thus the men gain self-respect; they gain a pride in their bearing and work, a pride in their unit and Service, which should lead eventually to a real patriotism which Britain so sadly lacks today.

The commander should make himself readily accessible to his men. They need to sense a personal regard for their welfare and a personal knowledge of their characters and circumstances. In this way the commander can to a great extent counteract the lack of effective parenthood. He can prevent the magnification of imaginary or petty grievances before they assume serious proportions. Every opportunity must be taken in attending to the welfare of the men, improving conditions, and removing small and needless irritations. He can almost eliminate absence without leave.

Further, the commander must produce an atmosphere of success, for nothing

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succeeds like success. A man who never receives a word of praise becomes resentful and acquires a sense of inferiority. Morale can be heightened by giving praise when it is earned, by encouraging men who, while slow to learn, are obviously doing their best, and by preventing the intimidation of such men.

Provision also must be made for keeping the men abreast of events and their implications. A man will be more valuable if he understands clearly what is going on in the world and, when at war, if he knows why he is fighting. This can be done with the help of an information room or, more effectively, by the commanding officer giving instruction in person. This provides a valuable opportunity for contact with his men, and does much to build up individuality and make the men part of the social community, aware of the trend of events and conscious of their responsibility towards life.

Finally, there must be built up a sense of fellowship. The self-seeking, self-protective point of view prevalent in civilian life must be replaced by one of mutual co-operation, support and confidence. Individuals accustomed to competitive living must be fused together to form a group.

If such leadership is compared with the leadership of German or Russian officers it will be realized that the latter exercise their powers through force and fear, whereas Christian leaders exercise their powers through confidence and love. In the one the individual depends on the state; in the other the state depends on the individual. The writer has proved that Christian leadership can raise the condition of a unit from that of low morale, poor discipline, lack of enthusiasm, indifferent work and an unhappy spirit to that of a thoroughly successful and happy unit.

THE NEED FOR TRAINING IN MORAL LEADERSHIP

What is being done in the Royal Air Force to develop these qualities in its leaders? The Air Council realized the importance of this aspect by inaugurating a course in moral leadership followed by a conference at the Chaplain's School at Dowdeswell Court in November, 1950. The course was attended by all home commanders-in-chief as well as two officers of air rank from each command. The Bishop of Croydon, assisted by the Archdeacon of Lewes, were the speakers. One result of this course has been a programme of week-end courses at Dowdeswell Court for officers, particularly station commanders, and non-commissioned officers.

The Commander-in-Chief, Technical Training Command, has introduced training in Christian principles throughout his command. The syllabus for every course includes a weekly period for this instruction. Further, he has inculcated the importance of the subject in all his officers through conferences, letters and, above all, the influence of his own convictions. The results have been spectacular and are borne out by statistics.

But this is not enough, and no other steps appear to have been taken in this direction. Training in moral and spiritual leadership is neglected almost entirely in such establishments as the Royal Air Force College at Cranwell and the Staff Colleges, despite the fact that these are the sources from which our future leaders are drawn.

If the Royal Air Force has gone too far along the road of material endeavour, surely much more could and should be done to restore the balance by arming our leaders spiritually and morally as well as materially—not only against the armed might of Russia but against the insidious propaganda and distorted half-truths of Communist ideology which is threatening the foundation of our national morale.

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THE AIR FORCES IN PARLIAMENT

DEFENCE

THE defence policy of Her Majesty's Government is clearly expressed in the terms of the Speech from the Throne, which was read by the Lord Chancellor to both Houses of Parliament on 6th November, 1951:

> *"My Government will make it their first duty to ensure our national safety and, in concert with the other members of the Commonwealth, the United States of America and our European partners, will share in a supreme effort to build a more tranquil and prosperous world."*

That, in all honesty and sincerity, is the policy of the government and the nation.

Among the many and various reasons given by nations for arming or rearming themselves, few can be as good as, and none better than, Mr. Churchill's with which he introduced the Defence Debate in the House of Commons on 6th December, 1951. "Our defence policies," he said, "do not arise so much from the danger of war as from the importance of the free world creating deterrents against aggression." It is the idea of *deterrents* rather than the idea of *danger* that he would have us regard as the background to our rearming. "Si vis pacem, para bellum." (If you wish for peace, prepare for war.) The Prime Minister felt, however, that the danger of a third world war was less now than it was at the time of the Berlin Air Lift in 1948. As the deterrents had increased, so the danger had become less; and he proposed to continue on the same path "with constancy and hope."

Rearmament, he said, was being applied proportionately in all three Services; but the greatest source of concern was the slow progress made in developing the Royal Air Force, especially in the supply of the latest machines. By way of explanation, he pointed out that it would not be possible as yet to spend all the money annually that had been intended, for the whole system of supply and production was suffering from "acute indigestion" owing to the sudden and enormous increase in the annual rate of expenditure on the R.A.F. alone, an increase of no less than £100 million in the first year of rearmament and much more in later years. This can be well understood. Such congestion is inevitable in highly complicated industries when great expansion is suddenly called for, and it must have been the experience in all rearmament programmes since bows and arrows were outmoded. But the Prime Minister assured the House that "in the sphere of material needs, the claims of the Royal Air Force must have first and special emphasis and priority."

Still, the delay is to be deplored and it must be reduced as much as possible in view of the state of the Soviet Air Force, which is formidable both in numbers and in quality. The Russian jet fighter, M.I.G. 15, has already proved its surpassing qualities in Korea and, as the Prime Minister said, "we must strive to bring to our own squadrons aircraft not only as good as, but better than, those to which they may be opposed."

In the course of his speech, Mr. Churchill touched upon "the establishment, in July, 1948, of the great and ever-growing American air base in East Anglia for using the atomic weapon against Soviet Russia should the Soviets become

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aggressors." The establishment of this base, he said, was a "most formidable step." Soviet publications were already declaring that "our island had become an aircraft carrier" and this placed us in the front line should there be a third world war. "The measure adds to the deterrents against war," Mr. Churchill said, "but it may throw the brunt on us should war come." It will indeed!

Mr. Attlee took exception to the Prime Minister's so explicit reference to the purpose of this American air base. He said, "It was never put forward specifically as a base for using the atomic bomb against Russia." To this Mr. Churchill replied, "That is the impression which, however mistakenly, they (the Russians) seem to have derived." If the Russians call our spade a spade, why shouldn't we?

The Prime Minister further announced that directions had been issued that training schools, depots and other administrative units in all three Services were to "acquire immediate combatant value." There is always a tendency for the "tail" of any force to increase at the expense of the "teeth," and this tendency has to be checked periodically. It is, of course, recognized that an air force must have a very considerable number of technical and administrative ground personnel in proportion to its aircrew strength. But our defence potential will be greatly increased if all ground personnel, and especially those of depots and training schools, are properly trained, as is intended, not only to defend themselves and their installations but also to fight in organized tactical bodies away from their local centres if necessary. For the possibility of an airborne invasion is not to be disregarded and, in the Prime Minister's own words, "our country should suggest, to the mind of a potential paratrooper, the back of a hedgehog rather than the paunch of a rabbit."

Mr. Attlee, following the Prime Minister, offered a further reason why we had not already been supplied with the latest types of aircraft in sufficient quantity. When State competes with State in building armaments that tend to become obsolete—and aircraft are among those that are most rapidly superseded by improved types—each State will in turn get ahead of the other. Having adopted the latest type and put it into production, a State will certainly enjoy superiority over others which have not done so; but it is more or less committed to that type for a time. Meanwhile a better type will be produced and another State will take the lead. It appears that the Soviet Union at present enjoys a certain advantage with its M.I.Gs. But by waiting a little we shall be able to equip our fighter squadrons with an aircraft better than the present M.I.G. and the advantage will then be ours.

The adoption of new types of aircraft for general supply is a delicate matter and calls for nice judgment. The aim is, of course, to have the advantage of the latest types just when the war breaks out; but, in view of the length of time that must elapse between the adoption of a type and its general provision, to achieve this aim requires a degree of prescience uncommon even among statesmen. There is, however, an alternative, and that is to keep the declaration (or starting) of war in one's own hands. As the Western Powers are hardly likely to start a war, the manifest advantage of choosing the time would appear to lie with the potential enemy.

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[National Defence Photo

R.C.A.F. guard of honour passing through the Memorial Gates at Trenton

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OUR COMMONWEALTH AIR FORCES

ROYAL CANADIAN AIR FORCE

LARGER than ever before in peace time, the Royal Canadian Air Force is looking to 1952 as a year during which its expansion plans will take firmer shape, and during which more operational units will move to Britain and the Continent.

The New Year found the R.C.A.F. with its newly formed No. 1 Fighter Wing getting under way at North Luffenham, in Rutlandshire, one of its three component fighter squadrons, 410, having arrived there with their own Canadian-built F-86 Sabre jets in November. Announced plans call for two more jet squadrons, also equipped with Sabres, to move to North Luffenham during early 1952. Also to be formed in the United Kingdom is a maintenance depot, to back up the growing R.C.A.F. fighter strength overseas.

Plans call for the R.C.A.F. to provide an eleven-squadron Air Division to the Integrated Force under N.A.T.O. The remaining squadrons, which are to follow those immediately destined for North Luffenham, are to move directly from Canada to the Continent. Four airfields will be required there, and the first of these will be in France.

TO OPERATE WITH U.S.A.F.

The Air Division will be integrated with U.S.A.F. forces on the Continent. Canadian squadrons are expected to remain at the North Luffenham airfield until stations are established in Europe for all eleven squadrons.

The R.C.A.F. is working on a three-year expansion programme, and considerable progress in the planned build-up was made during 1951. New fighting formations came into being, equipped with modern aircraft, new flying fields were opened, and new training stations began operations.

Some indication of the expansion programme being undertaken by the R.C.A.F. came early in 1951 when Defence Minister Brooke Claxton announced plans to:

1. Increase greatly Canadian aid to N.A.T.O. nations by training more aircrew in Canada.
2. Build the R.C.A.F.'s aircrew training programme to enable output of 3,000 aircrew a year, including N.A.T.O. aircrew from abroad.
3. Increase R.C.A.F. ground crew training facilities five-fold.
4. Open new flying training schools at seven points on the Prairies.

Before the year ended considerable headway had been made in this expansion programme, and good progress had been made also in achieving other aims previously announced.

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The first R.C.A.F. operational contribution to the N.A.T.O. Integrated Force in Europe was sent overseas and the first aircrew trainees were graduated under the plan for giving training aid to N.A.T.O. nations.

FOUR FIGHTER SQUADRONS FORM

On the operational side announcement was made of four new Regular Force fighter squadrons forming, all equipped with jet aircraft. Another Regular Force squadron was formed for maritime duties and was equipped with war-time-built Lancaster aircraft, modified for this purpose.

Two fighter squadrons saw overseas duty during 1951. No. 421 Red Indian Squadron left its Chatham, N.B., base in January and operated with the R.A.F. at Odiham until November, when most of its personnel returned to Canada. Some members of the squadron remained in Britain for further service there with other R.C.A.F. formations.

A second fighter unit, 410 Cougar Squadron, left Canada in November, taking its own Canadian-built Sabre jets. The Cougar Squadron was the first operational unit to arrive at the R.C.A.F. Fighter Wing at North Luffenham, in Rutlandshire. Two more squadrons are to join them at North Luffenham during the early part of 1952.

Another R.C.A.F. squadron, 405 Maritime Squadron, was abroad during the last year. This squadron flew its Lancasters to Britain during the spring and took part in exercises with the R.A.F. and the Royal Navy, and which included also forces from other N.A.T.O. nations.

The R.C.A.F.'s 426 Thunderbird Transport Squadron carried on throughout 1951 flying the Korea air-lift. United States Air Force officials complimented the squadron on its splendid record when the Thunderbirds completed their first full year on the air-lift, 27th July, 1951. Shortly before noting completion of a full year on the air-lift, the squadron moved back to its Dorval, P.Q., home base from McChord Field, Washington, from where it operated on beginning the lift. Flights now are made from Dorval to Japan and return, with touchdowns at McChord to load freight or personnel. Runs across Canada are utilized to serve domestic transport requirements.

FLY KOREA WOUNDED

During 1951 the R.C.A.F. began a series of aerial ambulance flights for Canadian Army men wounded in Korea. R.C.A.F. aircraft pick up the wounded at McChord Field and fly them across Canada, putting them down for hospitalization at points as close to their home towns as possible. The work is done by specially equipped Dakotas of 435 Squadron, Edmonton, and flight nurses and medical orderlies ensure proper care while in flight.

The R.C.A.F. worked with the U.S.A.F. during the annual air operations to supply arctic weather stations in the Canadian north. Four aircraft, two of them R.C.A.F., flew supplies in to these isolated stations, some of which must depend completely on air-lift for food, fuel, equipment and all other supplies.

The Air Force's search and rescue organization carried on throughout 1951, adding to its record of saving life. In addition to its primary task of lending aid to aircraft in distress, search and rescue carried out many other jobs including mercy flights to the far north, marine rescues, and operations of various types. The year's longest mercy flight came in December when two North Star transports flew from Toronto to Italy, carrying Canadian Red Cross supplies to the victims of the Po Valley floods. Fourteen Air Force medical personnel, including

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four nursing sisters, qualified during the year as trained para-rescue jumpers, available to the search and rescue organization.

PHOTO SURVEY CONTINUES

While not operating on as large a scale as during the last several years, owing to partial completion of the task, R.C.A.F. photo survey planes again droned over many parts of Canada during the summer months. Much of the flying during 1951 was in connection with S.H.O.R.A.N. operations, a system of radar control allowing aerial photographs to be converted for some types of mapping purposes without the long and laborious ground surveying previously required.

Operationally the Air Force played a big part in the Royal Tour. Princess Elizabeth and the Duke of Edinburgh, with their party, were flown from Trenton as far west as Saskatoon, and return, as well as to Washington and back. In addition, Press members, who were flown by the R.C.A.F. with the Royal party throughout the tour, were brought back by air from Torbay to Montreal, at the end of the visit. High spot of the tour for the Air Force was the visit to Station Trenton, where the Princess was given silver keys to the Memorial Gates commemorating the British Commonwealth Air Training Plan.

The expanded R.C.A.F. programme was reflected by new stations which were opened at various points. Stations housing new flying training schools were opened at Claresholm, Alta., and MacDonald, Man., and a new flying school was opened at Station Winnipeg. Other flying stations, to serve operational or training purposes, were opened at North Bay, Ont., and Bagotville, P.Q., and the R.C.A.F. moved back into St. Johns, P.Q., which was reopened to serve as a ground training school.

In addition to new stations being opened, construction work at many flying and ground training schools and operational stations already in being reflected the over-all expansion programme. This included building and runway extensions.

SABRES GO INTO SERVICE

The first fighter squadrons were equipped with Canadian-built Sabre jets during the year, and the Air Force took delivery of its first CF-100 Canuck, the Canadian designed and built all-weather, long-range fighter. This first aircraft is being used for testing purposes, and testing or training requirements will absorb the next eight or nine Canucks taken over. Operational Canuck squadrons will be formed when production models come off the line.

Delivery or future purchase of other types of aircraft was announced by the Air Force during the year. A small number of T-33 jet trainers were obtained from the United States, and plans were made public for manufacture of 576 of the aircraft in Canada. Announcement was also made of plans to make the Rolls-Royce Nene engine in Canada as a power unit for the Canadian-built T-33's. Announcement was also made of a programme to manufacture Harvard single-engine trainers in Canada, and the first one came off the lines in the latter part of the year. These aircraft, used during the war as an advanced trainer, now serve as the standard basic trainer in the R.C.A.F., and are to be powered by Canadian-built Pratt and Whitney engines. A loan of 100 U.S. Texans, the American designation of the Harvard, was arranged to tide over the Air Force until Canadian-made Harvards were available, and a similar number of twin-engine Mitchell trainers were purchased, also from the U.S. Another U.S. contract called for 280 twin-engine Beechcraft, to be used for training purposes. Delivery of Canadian-made Chipmunk trainers to flying clubs across Canada continued.

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These light aircraft are used for refresher training, being given by the flying clubs to veteran Air Force pilots. The scheme, paid for by the Air Force, is designed to maintain a pool of trained veteran flyers, to be available in emergency as flying instructors or for staff pilot duties. Plans were also announced to purchase forty-eight Fairchild C-119 transports from the United States, for use by Air Transport Command.

COMETS ARE ORDERED

Arrangements were made for purchase of two types of British aircraft. As the year drew to a close the first of three Bristol Freighters purchased for the R.C.A.F. had arrived in Canada, and announcement had been made of the planned purchase of two de Havilland Comet jet transports.

The R.C.A.F.'s Training Command had a busy year, the high-light from a news standpoint perhaps being the graduation, in May and June, of the first N.A.T.O. aircrew. Student navigators and pilots from Norway, the Netherlands, Belgium, France and Italy received their wings at colourful ceremonies at Centralia and Summerside. As the year ended further students from these countries, and including also Danish trainees, were taking training at R.C.A.F. schools. The first R.A.F. cadets arrived for training in January, and received their wings in October. Hundreds of other R.A.F. cadets had arrived in the meantime and were undergoing training.

Survival training for aircrew continued at Obed Lake, 165 miles west of Edmonton, and at Cambridge Bay in the Arctic.

WOMEN ARE RECRUITED

The first of the three Services to form a Women's Division during the Second World War, the R.C.A.F. scored another "first" during 1951 by being the first Service again to open its ranks to women. By the year's end hundreds of these smart new entrants had finished their basic training and had assumed duties at stations across Canada.

A new Manning Depot was opened during the year, at St. Johns, P.Q., site of a war-time Navigation School and Repair Depot. Also opened was a new Technical Training School, at R.C.A.F. Station, Aylmer, Ont., its purpose being to provide instruction in various ground trades.

Adjustments were made in recruiting of both ground and air crew. Requirements for ground crew entrants were changed, reducing academic requirements to Grade 8 or equivalent for all trades as regards male entrants and age limits were raised from 30 to 40. In aircrew, veteran pilots up to 35 were brought back on a short-service commission basis.

Work was continued through the year laying the foundation for Ground Observer Corps, controlled by the Air Force and manned by civilians.

Various organizational changes took place during the year. The growing importance of the interceptor element of the Air Force was reflected by Air Defence Group, with headquarters at St. Hubert, outside Montreal, being raised to Command status, headed by an Air Vice-Marshal. Tactical Group, with headquarters at Winnipeg, became 14 Training Group, coming under control of Training Command, and having direct responsibility for the new training schools being opened on the Prairies. North-West Air Command, with headquarters at Edmonton, became Tactical Air Group, and 12 Group, at Vancouver, became 12 Air Defence Group, responsible to Air Defence Command.

Air Transport Command moved its headquarters from Rockcliffe, outside Ottawa, to Lachine, P.Q., and plans were announced for Air Materiel Command

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to move its headquarters to Rockcliffe, from war-time temporary buildings in Ottawa occupied since shortly after the war's end.

Numerous personnel changes in senior positions took place during the year. Air Vice-Marshal F. R. Miller, formerly head of the Operations and Training Division at Air Force Headquarters, was named to fill the newly created position of Vice Chief of the Air Staff. Air Vice-Marshal C. R. Dunlap became Commandant of the National Defence College at Kingston, and Air Vice-Marshal A. L. James was appointed to head Air Defence Command. Air Vice-Marshal J. L. Plant was transferred to Paris, to become a senior staff officer under Lieutenant-General Lauris Norstad, Commander of the Allied Air Force in Central Europe. Air Vice-Marshal F. G. Wait became Air Member for Personnel at A.F.H.Q. Shortly before the year's end it was announced that Air Commodore Harold Godwin was to be promoted to Air Vice-Marshal early in the New Year, and would take over Air Materiel Command, replacing Air Vice-Marshal Ralph McBurney on his retirement from the Service.

GALLANTRY AWARDS

Awards for gallantry were made to ten officers and N.C.Os. during 1951. Squadron Leader Wallace McLeish, Flight Lieutenant Oland Nelson, Squadron Leader Christopher Hare, Flight Lieutenant Lawrence Pearson, Flight Lieutenant Paul Gibbs and Flying Officer Robert Glaister were named winners of the Air Force Cross. The Air Force Medal went to Sergeant George Leckie, and the British Empire Medal to Sergeant Delbert Wright. Squadron Leader Terence Evans was awarded the King's Commendation for Valuable Service in the Air, and Corporal Elmer Talson was awarded the King's Commendation.

The R.C.A.F. Reserve grew during the year. An additional Auxiliary Squadron, No. 433, was formed in Vancouver, and active ground training establishments were formed at different points. These included radar squadrons and technical training units. Thousands of Reserve members attended summer camps and the Reserve units, in addtion to regular training throughout the year, took part in many special exercises, including workouts with units of the Regular Force.

Although a number of stations could not follow suit because of heavy construction work under way, more than a score of stations held open house for the public on the Fifth Annual Air Force Day, 9th June. Members of the public flocked to R.C.A.F. stations which played host for the day, and did their utmost to show their visitors as much as they could of today's R.C.A.F.

R.C.A.F. strength on 31st December, 1951, was 29,800. Strength on 31st December, 1950, was 18,865.

R.C.A.F. PILOT'S BADGE AWARDED TO BRITISH MINISTER OF DEFENCE

Before Field-Marshal The Viscount Alexander of Tunis left Canada to take over from Mr. Churchill the responsible post of Minister of Defence, he was awarded the R.C.A.F. Pilot's Badge by the Chief of the Air Staff, Royal Canadian Air Force.

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The Chief of Air Staff (Air Vice-Marshal D. V. Carnegie, C.B., C.B.E., A.F.C., R.A.F.) chats with Squadron Leader R. J. Lawlor, D.F.C., R.C.A.F., a student at the R.A.F. Flying College, on the arrival at R.N.Z.A.F. Station, Ohakea, of the detachment from Manby

[Photo: Christchurch "Star-Sun"

OUR AIR FORCES CO-OPERATE

Flying personnel of the R.A.F., R.C.A.F. and U.S.A.F. from the R.A.F. Flying College, Manby, form one crew and fly 25,000 nautical miles, which included a visit for further co-operation to the R.N.Z. Air Force

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ROYAL NEW ZEALAND AIR FORCE

By Flight Lieutenant G. Bentley

R.A.F. FLYING COLLEGE VISIT

A TOUR of Royal New Zealand Air Force Stations was made in January of this year by eight officers of the R.A.F. Flying College, Manby (Lincs). This was the longest of six liaison flights dispatched from the College, and it covered some 25,000 nautical miles. The outward journey followed the trunk route as far as Singapore, where the team stopped for three days to visit Kuala Lumpur and study the air operations in Malaya. Here, members of the flight took part in a supply-dropping mission at the invitation of an Australian Transport Squadron.

Flying in a Lincoln aircraft from the College, the party then visited the R.N.Z.A.F. Stations at Ohakea, Wigram and Whenuapai. Talks were also held at Air Department, Wellington. The R.N.Z.A.F. Flying-boat Squadron at Lauthala Bay (Fiji) was to have been visited—the party was due there on 29th January—but a hurricane which swept the area on the eve of the visit caused such damage to the station that the visit by the R.A.F.F.C. had to be cancelled.

However, the tour afforded an opportunity for the College students to study developments within the R.N.Z.A.F. and at the same time to impart useful information to the Air Force in this Dominion.

In the picture will be seen the following members of the crew of the Lincoln aircraft: From left—Squadron Leader R. J. Lawlor, D.F.C. (R.C.A.F.); Squadron Leader R. H. Rittey (R.A.F.); Lieutenant-Colonel D. K. Smith (U.S.A.F.); Wing Commander R. I. K. Edwards, D.F.C. and Bar, A.F.C. (R.A.F.), leader of the mission; Squadron Leader H. A. Chater, A.F.C. (R.A.F.); seated in entrance, from left—Flight Lieutenant M. R. S. Cunningham (R.A.F.); Squadron Leader F. Hugill (R.A.F.). The only member of the crew not seen in the picture is Wing Commander G. J. Grindell, D.F.C., A.F.C. and Bar (R.A.F.).

No. 75 SQUADRON REUNION

Reunions of ex-soldiers have been a feature of New Zealand life, at least since the end of the Boer War, but because so many New Zealand airmen served in R.A.F. Squadrons, Air Force reunions have not been so common in this Dominion.

Recently, however, the most distinguished Squadron with which the name of New Zealand has been associated held its first reunion in this country.

No. 75 (N.Z.) Squadron, R.A.F., was never wholly an all-New Zealand unit, but it was New Zealanders in the main who flew with the Squadron from its first operational flight in March, 1940, until the end of the war.

For this country, the story of No. 75 Squadron began in August, 1939, its nucleus being a number of Wellington bombers ordered by the New Zealand

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Government for the R.N.Z.A.F. When war broke out, the New Zealand Government offered the aircraft—and the trained crews sent to fly them out to the Dominion—to the British Government for use where they would do the most good—or harm.

Two hundred former members of the Squadron were present at the first reunion, held in the Territorial Air Force Mess at Rongotai (Wellington). Present were the Squadron's first C.O. (Air Commodore M. W. Buckley, C.B.E., now retired), and the Deputy Chief of Air Staff (Group Captain R. J. Cohen, C.B.E., A.F.C.).

The following morning 100 ex-Squadron members stood at the Wellington Cenotaph as the recently retired New Zealand High Commissioner in the United Kingdom (Mr. W. J. Jordan) laid a wreath to the memory of the Squadron's 743 dead.

Messages from Great Britain read at the reunion included one from a former C.A.S. in New Zealand, Air Chief Marshal Sir Ralph Cochrane, C.B.E., K.C.B., A.F.C.

PROMOTIONS

To Group Captain:

Wing Commander I. G. Morrison, O.B.E.

To Wing Commander:

Squadron Leader B. V. Le Pine.
Squadron Leader J. J. de Willimoff, M.B.E., D.F.C.
Squadron Leader D. F. St. George, D.F.C.
Squadron Leader A. S. Agar, A.F.C.
Squadron Leader N. A. Vear, O.B.E.
Squadron Leader T. B. Pledger.

APPOINTMENTS

Air Commodore S. Wallingford, C.B., C.B.E., as Air Officer Commanding Headquarters, Tactical Force.

Group Captain M. F. Calder, C.B.E., as Air Member for Personnel.

Group Captain B. S. Nicholl as Commanding Officer, R.N.Z.A.F. Station, Wigram.

Group Captain R. W. K. Stevens as Director of Postings & Personal Services, Air Department.

Group Captain F. R. Dix, O.B.E., as Assistant A.M.P., Air Department.

Group Captain I. G. Morrison, O.B.E., as Commanding Officer, R.N.Z.A.F. Station, Ohakea.

Wing Commander R. Webb, D.S.O., D.F.C., as Commanding Officer, R.N.Z.A.F. Station, Whenuapai.

Wing Commander J. C. Pope, R.A.F., as Director of Engineering, Air Department.

SILVER MODEL OF "WIMPEY" FOR ROYAL NEW ZEALAND AIR FORCE

A silver model of a Wellington bomber was presented by Sir Hew Kilner, Managing Director of the Aircraft Section of Vickers-Armstrongs, to Mr. F. W. Doidge, the New Zealand High Commissioner, at a ceremony in London. Mr.

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Doidge accepted the model on behalf of the Royal New Zealand Air Force.

It was a pleasing, informal occasion. Among the guests were two former Chiefs of the Air Staff in New Zealand, Air Chief Marshal the Hon. Sir Ralph Cochrane, and Air Marshal Sir Victor Goddard. Air Chief Marshal Sir Hugh Lloyd, Commander-in-Chief, Bomber Command, and Air Commodore C. E. Kay, Air Officer Commanding R.N.Z.A.F. Headquarters, London—who was one of the first flight commanders of No. 75 Squadron and later commanded it for a period—were also present.

Sir Hew Kilner recalled that when the war broke out the New Zealand Government gave to Britain the first flight of Wellington bombers which were then about to be flown out to New Zealand for the R.N.Z.A.F. For good measure the Government equipped the aircraft with New Zealand crews, and so became No. 75 (N.Z.) Squadron. His firm, said Sir Hew, was very proud of the record of the Wellington, which bore the brunt of the bombing of the enemy during the first few years of the war. Because of the close ties between the Wellington bomber and No. 75 Squadron, his firm wished to present the R.N.Z.A.F. with a small permanent memento.

Mr. C. W. Salmon, representative in New Zealand for Vickers-Armstrongs, is arranging for the model to be handed over to R.N.Z.A.F. Headquarters, Wellington.

OPERATION "SCUTTLE" —A VETERAN SHIP PASSES

AN Air Force in peace time is seldom afforded an opportunity to stage an operational exercise with live weapons and a real target; but such good fortune has come the way of No. 75 (Bomber) Squadron, Royal New Zealand Air Force, twice in the past eighteen months. The target and the weapons on each occasion have been a ship and solid-headed rockets.

Last month the former Wellington-Nelson ferry steamer *Arahura* (1603 tons) was the target for Operation "Scuttle." The task was by no means difficult as the *Arahura* was only a ghost of her former self. (She was built at Dumbarton for the Union Steam Ship Company half a century ago.)

Three seamen—probably with their own ideas of what constituted an operational exercise—who had remained aboard the *Arahura* while she was being towed to the target area, started a fire in the ship's aft hold, and fifteen minutes before Mosquito aircraft of No. 75 Squadron were due over the target the vessel was blazing amidships.

By the time the Mosquitos arrived the blaze had spread forward, enveloping the bridge and surrounding superstructure in a mass of flames. This did not hinder the exercise, however. As the *Arahura* was regarded as "an enemy merchant cruiser, armed with anti-aircraft guns," the Mosquitos were able to make their attacks under cover of smoke.

The first Mosquito to attack neutralized the anti-aircraft guns with accurate cannon-fire and the six aircraft following used solid-headed rockets. Twelve

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[R.N.Z.A.F. Photo

Belching smoke, the "Arahura" has a heavy list

minutes after the first attack the ship was well down at the stern and the attack was called off.

As in the case when No. 75 Squadron sunk the barque *Lutterworth* eighteen months ago, the solid-headed rockets were found to be most effective. For twelve minutes the *Arahura* took a pounding along her waterline. Some of the rockets were seen to enter the ship's starboard side, go through the ship and come out of the water 100 feet away. Other rockets ricocheted spectacularly. One rocket, which was dropped short, ricocheted over the ship and landed about 200 feet on the other side.

The squadron claimed 60 per cent. of the rockets fired were direct hits.

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SOUTH AFRICAN AIR FORCE

A REVIEW OF No. 2 SQUADRON OPERATIONS IN KOREA

4TH NOVEMBER, 1950, TO 31ST AUGUST, 1951

INTRODUCTION

IN response to an urgent call by the United Nations Organization to all member nations to render material assistance in the Korean War, the South African Government decided, in August, 1950, to dispatch a token force consisting of one fighter squadron. The Squadron, which was to be commanded by Commandant S. V. B. Theron, D.S.O., D.F.C., A.F.C., was to be attached to one of the U.S. Air Force fighter/bomber groups operating in Korea, and was to be established on identical lines to similar American units. Accordingly, fifty officers, thirty-eight of whom were aircrew, and 157 other ranks of all the required trades were selected from among the many volunteers, and all preparations were made to dispatch them as soon as possible to the Far East.

The Squadron was to be equipped with twenty-five F.51D Mustang aircraft, which were to be taken over, complete with spares and all ancillary equipment, at a prearranged air base in Japan. There preliminary training was to be carried out by all ranks prior to entering into operations as a fighting unit.

In order to facilitate this hand-over and to attend to the myriad technical, administrative and equipment details involved, as well as to serve as a link between the Far East military authorities and the Union, a small liaison staff was selected and sent by air to Tokyo a month prior to the proposed date of departure of the Squadron. This staff was headed by Commandant J. D. Pretorius, A.F.C., and consisted of equipment, signals and administrative representatives. Office accommodation was provided and all preliminary spadework was undertaken. This was a most necessary step and paid handsome dividends.

DEPARTURE

The Squadron finally embarked at Durban on the specially chartered Royal Dutch inter-ocean liner *Tjisdane*, and set sail for Japan on 26th September, 1950. At this time the war in Korea was being waged very successfully by the combined United Nations forces and at one stage it was thought that it might be necessary to recall the ship and return the Squadron to this country. In the event, however, the voyage continued, and after forty very enjoyable days at sea the Squadron disembarked at Yokohama on the morning of 4th November and were given a warm reception by senior officers of the U.S. Air Forces and Commonwealth Forces.

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INDOCTRINATION

The Squadron finally arrived at Johnson Air Base, where, immediately after the personnel had been billeted and given lectures on various subjects, intensive training commenced both in flying and in ground subjects. It is noteworthy to record here that only twelve days after arriving in Japan the first nine pilots, accompanied by twenty-one groundcrew, left for Pusan in South Korea. The Commanding Officer and his four flight commanders flew over in five Mustangs, while the other four pilots proceeded with the groundcrews and equipment in two Dakota aircraft of the U.S. Air Force.

The reason for the initial "split-up" in the Squadron was to enable these first nine pilots to gain experience in the operational techniques employed by the 5th Air Force so that the remainder of the Squadron could be correctly indoctrinated at a later date. They flew as Nos. 2 to American pilots of the 18th Fighter Bomber Group, to which the Squadron was later to be attached. At this stage of the Korean War the Communist forces were holding a line running roughly from Sinanju up to the Manchurian border, across to the Chosin Reservoir, and thence to the east coast.

Fighter-bombers in the theatre are employed mainly on:

(*a*) General armed reconnaissance.
(*b*) Fighter escort to bomber formations.
(*c*) Close support of the ground forces.

FIRST OPERATIONS

On 20th November the advance party of 2 Squadron moved north to an airstrip at Pyongyang, the capital of North Korea, where they lived under canvas once more. The subzero temperatures were a great hardship to these South Africans, who had only just recently come from a South African summer. With great determination, however, and a will to get on with a difficult job, all flying commitments allotted to them were carried out efficiently and with excellent results.

The first operational mission to be flown by 2 Squadron took place on 19th November, 1950, and during the eleven days of continuous operations up to 30th November the nine pilots carried out sixty-seven effective missions totalling 121 hours 40 minutes' flying. This was a remarkable achievement by all ranks, considering that only four aircraft were available, the fifth having had to undergo a complete engine change on arrival in Korea. The majority of these operations were close-support missions to the hard-pressed ground forces, who were on a general retreat following the intervention of hordes of Chinese Communist forces into the Korean War.

On 2nd December, 1950, the advanced detachment evacuated the airstrip at Pyongyang and were airlifted to Suwon airfield by aircraft of the U.S.A.F. Combat Cargo Command. Suwon is roughly thirty miles south-south-west of Seoul, the capital of South Korea. The living conditions here were no less trying than those at Pyongyang, and once again all personnel were under canvas. During this retreat operations were carried out from Suwon and Pyongyang alternately, using Pyongyang as an advanced landing strip until the last of the ground personnel and equipment had been evacuated from Pyongyang.

FIRST CASUALTY

On 5th December, 1950, Captain J. F. O. Davis, D.F.C., had a remarkable escape from death. While in company with Captain G. B. Lipawsky, D.F.C., on

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a mission to destroy rolling stock north of Pyongyang, Captain Davis dived down and rocketed a large supply dump of box stores on a railway siding. On his third rocket attack he gained a direct hit on his target, which blew up under him while he was pulling out of his dive at a height of about 200 feet. It was obviously an ammunition dump, as black clouds of smoke shot into the air to a height of 2,000 feet. Captain Lipawsky, who was flying top cover, felt the impact of the explosion at 7,000 feet. Captain Davis's aircraft was severely damaged; both aileron and elevator controls were inoperative, holes the size of soup plates were blown in his wings; a hole six inches in diameter was blown through the floorboards; both the windscreen and cockpit canopy were blown off; and last, but not least, his engine was severely damaged and glycol coolant was streaming out of the engine and radiator.

Captain Davis headed towards friendly lines, but it was not long before his engine seized up. He was too low to bale out and, as the aircraft was uncontrollable below 170 m.p.h., Captain Davis had no option but to crash-land in a ploughed field, skilfully manœuvring the aircraft into position with the trimming tab controls only. He was uninjured and, after an anxious period behind the enemy lines, was rescued by a U.S.A.F. L.5 spotter plane, which landed on a road near by. On returning to the Squadron Captain Davis immediately recommenced operational flying, but after completing sixty-two missions was lost on a close-support mission on 10th March, 1951.

WINTER CONDITIONS

The weather conditions at this stage were far from encouraging. Cold, damp, snow, rain and mud all combined to make living conditions under canvas very trying. Although winter clothing issued to the ground staff served the purpose of keeping them warm, the garments did not stand up to the wear and tear which accompanied their arduous work. These men cheerfully kept working up to all hours of these freezing nights in order to have the aircraft operationally serviceable before first light. Then, after snatching a few hours' sleep, they were invariably called up at 4.30 a.m. to prepare their aircraft for take-off on the first sorties of the day.

THE COMPLETE SQUADRON FORMS UP

By now fifteen pilots with additional groundcrew and aircraft comprised the total of 2 Squadron detachment. Weather permitting, extensive operations were carried out, but it became obvious that, due to the rapid advance of the Communist forces, a further evacuation would be necessary in the near future. An airfield on the southern tip of the Korean Peninsula was selected for the new base, where preliminary preparations were made for the installation of the equipment and personnel of the advance party.

Finally, on 17th December, 1950, all the remaining personnel, equipment and aircraft were flown from Johnson Air Base in Japan to K.10 Air Base in South Korea. On 22nd December all personnel were withdrawn from K.13, Suwon, and flown to K.10, with the exception of a small detachment which was left behind. K.13 was in future to be used as an advanced landing base for refuelling and rearming only. Full-scale support missions were the order of the day, as the Communists were advancing rapidly in all sectors. Many reconnaissance sorties were also flown to harass and disrupt enemy supply lines from the Yalu River. Although claims of enemy vehicles destroyed were not very high, these flights served a very useful purpose by restricting enemy vehicular supply operations to the hours of darkness only.

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The Squadron was now a complete fighting unit operating as individual flights, which promoted a healthy competitive spirit between both pilots and ground-crews. At the end of December, 1950, it was still using K.13, Suwon, as an advanced landing base and had flown 380 effective operational sorties totalling 752 hours 50 minutes' flying time. The new base at K.10 was much more comfortable than K.13 and K.24 had been, and plans had been made for large-scale building operations for the improvement of the base in general. The preparation of food had improved considerably and, although most of the personnel were still under canvas, morale was high. A common remark passed by everyone was: "K.13 was never like this." Although the weather was still extremely cold, the majority of the days were clear and ideal for operational flying. The worst of the winter was over.

Up till 31st January, 1951, 2 Squadron had flown 868 effective operational sorties totalling 1,948 hours 20 minutes' flying time. The average length of each operational mission was just over three hours and a tour of operations was limited to seventy-five sorties per pilot, totalling roughly 200 hours. It was felt that a tour of this length was quite long enough and would not cause undue fatigue.

REPLACEMENTS

To replace battle casualties and tour-expired pilots in the Squadron it was necessary to start an operational training unit in South Africa using Spitfires for flying training. As was anticipated, replacements were required at the wastage rate of eight per month. To expedite the transfer of pilots to and from this far-distant theatre, arrangements are made for them to travel by civil airliner, which results in a reasonably rapid change-round. Groundcrews are scheduled to stay for at least twelve months in the Squadron before returning to the Union.

CASUALTIES AND CHANGE IN COMMAND

The first pilot to be lost on operations over Korea was Lieutenant St. Elmer Wilson on 2nd February, 1951. Up to 31st August, 1951, a further fifteen pilots and twenty-four aircraft have been lost. Six pilots have been rescued from behind enemy lines by air and sea-rescue services; three by helicopter, one by L-5 spotter plane; one by S.A. 16 Albatross Amphibian; and one by destroyer. Two other pilots who were forced to bale out over the mountainous terrain of South Korea were also flown to safety by helicopter.

The first two pilots to complete their operational tour of duty were Commandant Theron and Captain Lipawsky. Commandant R. F. Armstrong assumed command of the Squadron, having been sent out by air from South Africa together with six other pilot replacements in February, 1951.

SQUADRON TRAINING OF REPLACEMENTS

All replacement pilots are given a minimum of ten hours' flying on Mustangs prior to commencing operational flying. This conversion training is carried out on Squadron aircraft at K.10 base. It includes two periods of familiarization flying, the remaining transition period consisting of rocket firing, dropping napalm bombs and strafing out to sea on a group of rocks. As soon as a pilot's transition training is completed he is taken on a flight as far as the bomb-line with an experienced pilot leading, to familiarize him with the type of terrain and the outstanding landmarks over which he will have to fly in the future. For his first ten to fifteen operational missions he flies as a No. 2 in a formation, after

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which, if he proves capable, he is given the chance to lead a section. By this method a pilot can rapidly become familiar with map reading over the difficult Korean Peninsula, where most areas look similar due to the never-ending mountain ranges; whereas as a No. 2 or No. 4 his duties would be strictly confined to watching above and below him for possible enemy aircraft which might attack his formation at a moment's notice. After he has proved that he is a capable section leader, usually after twenty to twenty-five sorties, he is allowed to lead a formation on an operational mission. An experienced pilot always accompanies him in the formation in case he has difficulty in coping with the numerous controllers who direct the air strikes by radio, until such time as his flight commander is satisfied that he is fully conversant with all the intricacies of fighter-bomber operations.

RECORD OF OPERATIONS

On an average fifteen to twenty effective operational sorties are carried out by 2 Squadron daily, with the result that daylight hours are fully occupied by all personnel in keeping the maximum number of available aircraft in the air.

As at 31st August, 1951, 4,400 effective operational sorties had been flown against the Communists in Korea. Tabulated below is an analysis of confirmed claims by the Squadron as at 31st July, 1951:

	Destroyed	*Damaged*
Marshalling yards	1	4
Buildings	2,016	4,805
Railway bridges	6	20
Road bridges	44	53
Vehicles	547	237
Supply dumps	158	49
Tanks	10	18
Field guns	21	21
Anti-aircraft positions	58	18
P.O.L. dumps	27	21
Locomotives	4	5
Rolling stock	139	133
Tunnel entrances	2	14
Shipping	35	28
Dams	0	4
Troops	1,568	0

Decorations awarded to members of the Squadron are as follows:

Eleven D.F.Cs. (American).
Fifty-eight Air Medals.
Seven Bronze Stars.
One Bronze Medal.
Seventy-eight Clusters.

CONCLUSION

At the present time the Squadron is still functioning in its ground-attack role as a veteran fighting unit with eleven months of hard and continuous operational flying behind it. Morale is high and more and more men of the South African Air Force are gaining experience which will be invaluable in the event of another major conflict.

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ROYAL AUSTRALIAN AIR FORCE

R.A.A.F. STARTS BIG OPERATIONAL TRAINING SCHEDULE

THE R.A.A.F. have begun a big schedule of operational training. The Minister for Air (Mr. William McMahon) described the programme as the biggest the R.A.A.F. has undertaken since the war. The R.A.A.F. planned it to give operational squadrons the utmost experience in peace-time exercises performed under mock war conditions.

These exercises include the first movement of R.A.A.F. jet fighters outside Australia, to Momote, and a big-scale defence of and attack upon Newcastle, the key industrial area.

The first of these exercises started in February, when Mosquitos of No. 87 (Photo Reconnaissance) Squadron flew from their base at Canberra to Pearce, near Perth, Western Australia, on a mobility exercise. Ground crews and equipment were carried in Dakotas from Canberra. The Mosquitos will stay in Western Australia until April, and will make a photographic survey of 30,000 square miles around Shark Bay and another 30,000 square miles near Kalgoorlie. The Squadron will be using for the first time its new Williamson O.S.C. specially designed photogrammetic cameras, which were imported last year.

A feature of the year's exercises is the part played by two squadrons of the Citizen Air Force—No. 22 (City of Sydney) Squadron and No. 23 (City of Brisbane).

The remainder of the year's programme is summarized as follows:

APRIL.—*Operation "Flying Fox."* No. 22 (City of Sydney) Squadron's Mustangs will defend Sydney against attacks by No. 87 Squadron's Mosquitos, and No. 82 Wing Lincolns from Amberley. No. 22 is a Citizen Air Force Unit.

Operation "Welcome Emu." No. 78 Wing will send twelve Vampire jet fighters from their Williamtown, N.S.W., base to Pearce, W.A., for exercises.

MAY.—*Operation "Westward Ho!"* No. 3 Squadron's Mustangs will fly from Canberra to Pearce on an exercise.

JUNE.—*Operation "Panting Ants."* No. 6 Squadron's Lincolns will make a mobility exercise from Amberley to Darwin.

Operation "Tropic Snapper." No. 87 P.R. Squadron's Mosquitos will make a mobility exercise from Canberra to Townsville.

JULY.—*Operation "Flying Fish."* No. 23 (City of Brisbane) Squadron, Citizen Air Force, will stage an air defence of Brisbane exercise.

AUGUST.—*Operation "Bobbing Cork."* No. 82 Wing's Lincolns and No. 86 Wing's Dakota transports will be engaged in anti-submarine and search-and-rescue exercises off the N.S.W. coasts.

Operation "Worn Palms." No. 78 Wing's Vampires will fly to Momote from Williamtown, N.S.W., on a mobility exercise.

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[*Photo: R.A.A.F. Official*

After a strike on Red bandits in Malaya, a typical crew of the R.A.A.F.'s No. 1 Squadron returns for debriefing

OCTOBER.—*Operation "Palms Up."* No. 2 and No. 6 Squadron's Lincolns fly from Amberley to Momote for exercises.

NOVEMBER.—*Operation "Tom Thumb"* is the year's biggest exercise, in spite of its name. No. 22 and No. 23 (City of Sydney and City of Brisbane) Citizen Air Force Squadrons will defend Newcastle against attacks made by elements of the Mobile Task Force—Lincolns of No. 82 Wing attacking. Permanent squadrons in the Newcastle defence will be from No. 78 Fighter Wing and No. 3 Squadron, while No. 87 Squadron and No. 86 (Dakota Transport) Wing will also be engaged.

R.A.A.F. DAKOTAS DROP BRITISH PARATROOPS IN MALAYA

In February R.A.A.F. Dakotas of No. 38 Transport Squadron dropped the first British paratroops used in the Malayan anti-bandit campaign. The paratroops were a squadron of the Special Air Service (Malayan Scouts) Regiment. They were dropped in a narrow valley in North Central Malaya, which was being used by the terrorists as a food production area.

Squadron Leader Roy Carlin captained the Dakota which dropped the first group of paratroops. Lincoln heavy bombers of No. 1 Squadron, R.A.A.F., were also concerned in the operation, which is the first mass operational parachute drop of the Malayan bandit war.

The area into which the paratroops were dropped is a narrow valley remote from usable roads, and impossible of access by river. Other troops and police made their way on foot through jungle to link up with the paratroops twenty-four hours after the drop, and cordoned the area of operations.

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[Air Ministry Photo

SHIPS OF THE DESERT "OLD" AND "NEW"

An armoured car of No. 400 Flight passing an Egyptian loading grain (we hope!) on to a camel

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CURRENT EVENTS

The Royal Air Force Regiment in the Canal Zone

ADDITIONAL units of the R.A.F. Regiment were the first reinforcements sent in the present emergency to the Suez Canal Zone, where they are giving a good account of themselves. In addition to assisting other R.A.F. personnel in the heavy extra burden of station defence in the present troubled conditions, the Regiment has taken over many other duties. An armoured car flight is protecting vital R.A.F. installations, communications, depots and outlying detachments. It is operating on a twenty-four-hour basis and it is at night that the responsibilities fall heaviest upon them, bringing an increased need for vigilance and readiness for instant action. The patrolling of the desert and highways to curb the activities of terrorists, saboteurs and pilferers, together with the investigation of possible hideouts for undesirable and probably fanatical anti-British elements, must provide never a dull moment.

[*Air Ministry Photo*

EXERCISE "INVESTIGATION"
An armoured car, led by its attendant Land Rover, sets off to investigate something which has clearly aroused their curiosity

A Regiment wing engaged in the protection of convoys on the Ismailia—Abu Sueu road has been involved in ambushes. A rifle squadron at Ismailia is protecting signal units. Other units of the Regiment are manning five different road blocks in the Canal Zone at which all vehicles are halted and searched.

There are, of course, more mundane affairs to occupy some of the time, such as sharing with their Army comrades the day-to-day "chores" and unusual jobs which must of necessity fall to their lot in the scarcity of local labour. With personnel of the Navy and Army, they have been unloading military stores from ships at Port Said. With true British spirit, they soon accustomed themselves to the unusual circumstances and buckled to with the good will that never shines so bright among us as it does under war conditions.

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[Air Ministry Photo

THE R.A.F. REGIMENT "LEND A HAND"

From the derricks of the S.S. "Artisan," moored off Port Said, comes another crate, and R.A.F. Regiment "stevedores" manœuvre it into position on to the congested lighter waiting to receive it below. Except for a short break for lunch, this arduous work goes on unremittingly throughout the daylight hours

Although there has yet been no threat to British forces from the air, light anti-aircraft squadrons are ready for action if necessary.

No. 4001 Armoured Car Flight, recently flown from R.A.F. Station, Amman, Jordan, to Fayid, was previously stationed at Aden for twenty-two years.

The men of the Royal Air Force Regiment have been living up to the high standard expected of them in maintaining the prestige of the Royal Air Force as a whole, by their smartness and efficiency, under difficult conditions in this turbulent and troubled part of Egypt. In this crisis they are doing sterling work and fulfilling the role for which the Regiment was created.

* * *

Flying Badge for A.T.C. Cadets

Air Training Corps cadets who qualify for their private pilots' licence under the Air Ministry flying scholarships scheme are to receive a specially designed flying badge.

During the next two or three weeks A.T.C. squadron parades will be held throughout the country, when approximately 300 cadets who have so far qualified, will be presented with their badges. About 100 squadrons have members who have qualified.

The official description of the flying badge is: "A bird with outstretched wings, in gilt, on a background of R.A.F. blue enamel, surrounded by oak leaves in gilt, to be worn in a central position on the left-hand breast pocket of the jacket below the flap."

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Royal Air Force Representation in the Procession

Leading the procession on the occasion of the funeral of His late Majesty King George VI on Friday, 15th February, was a composite detachment of over 350 officers and men representing all the Home Commands of the R.A.F., the R.A.F. Regiment and the Royal Auxiliary Air Force, headed by the Royal Air Force Central Band.

In command of this detachment, and of R.A.F. guards of honour mounted on that day, was Group Captain R. J. A. Ford. The Central Band was under the direction of the Organizing Director of Music, Wing Commander A. E. Sims, O.B.E.

The Queen's Colour of the Royal Air Force in the United Kingdom which was presented to the R.A.F. by the Queen, then Princess Elizabeth, at a ceremony in Hyde Park in May, 1951, was paraded by a guard of honour of three officers and 50 airmen, at Westminster Hall. R.A.F. guards of honour were also mounted, with those of the other two Services, at Paddington and Windsor Stations.

Accompanying officers of the Royal Households were four officers and ten airmen of the King's Flight, R.A.F.

A particular close link with the Royal Family was established by the representation in the funeral procession of the Royal Auxiliary Air Force. Personnel were selected from No. 603 (City of Edinburgh) Squadron, No. 2603 (City of Edinburgh) Squadron of the R.Aux.A.F. Regiment, and No. 3603 (City of Edinburgh) Fighter Control Unit, of all of which the Queen is Honorary Air Commodore, and from No. 600 (City of London) Squadron and No. 2600 (City of London) Squadron, R.Aux.A.F. Regiment, of which the Queen Mother is Honorary Air Commodore.

Nearly half a mile of the route of the funeral procession was lined by over 1,200 officers and airmen, drawn from R.A.F. Technical Training Command, and a contingent of fifty officers and cadets of the Air Training Corps. They occupied positions in Victoria Gate, Stanhope Terrace, Gloucester Square, Radnor Place and Sussex Gardens up to Paddington Station. The R.A.F. units lining the route were commanded by Group Captain B. A. J. Crummy, C.B.E.

Pilotless Jet Unveiled

Details are now available of the first pilotless jet aircraft to be test flown on Australia's rocket range. It takes off, manœuvres and lands by radio control alone. It is to be used as a high-speed target for weapon testing. The plane, designed and developed by the Government Aircraft Factories of the Australian Department of Defence to a British Ministry of Supply Specification, is powered by an Armstrong Siddeley Adder baby jet engine, built at Coventry, England. The Adder, only 27 inches in diameter and 550 lb. in weight, is Britain's smallest jet engine.

The aircraft has a sleek streamlined fuselage 22 ft. long, with short straight stub wings which are detachable. Instead of an undercarriage, the aircraft has a skid landing gear. During take-off run the plane uses a three-wheel trolley which is jettisoned at the instant of take-off and has brakes which automatically stop it on the runway.

Another difference from the piloted version, details of which were released in 1950, is the disappearance of the cockpit canopy. Instead, the cabin is fitted with a special radio and auto-pilot. There is a single air intake for the engine on the upper fuselage.

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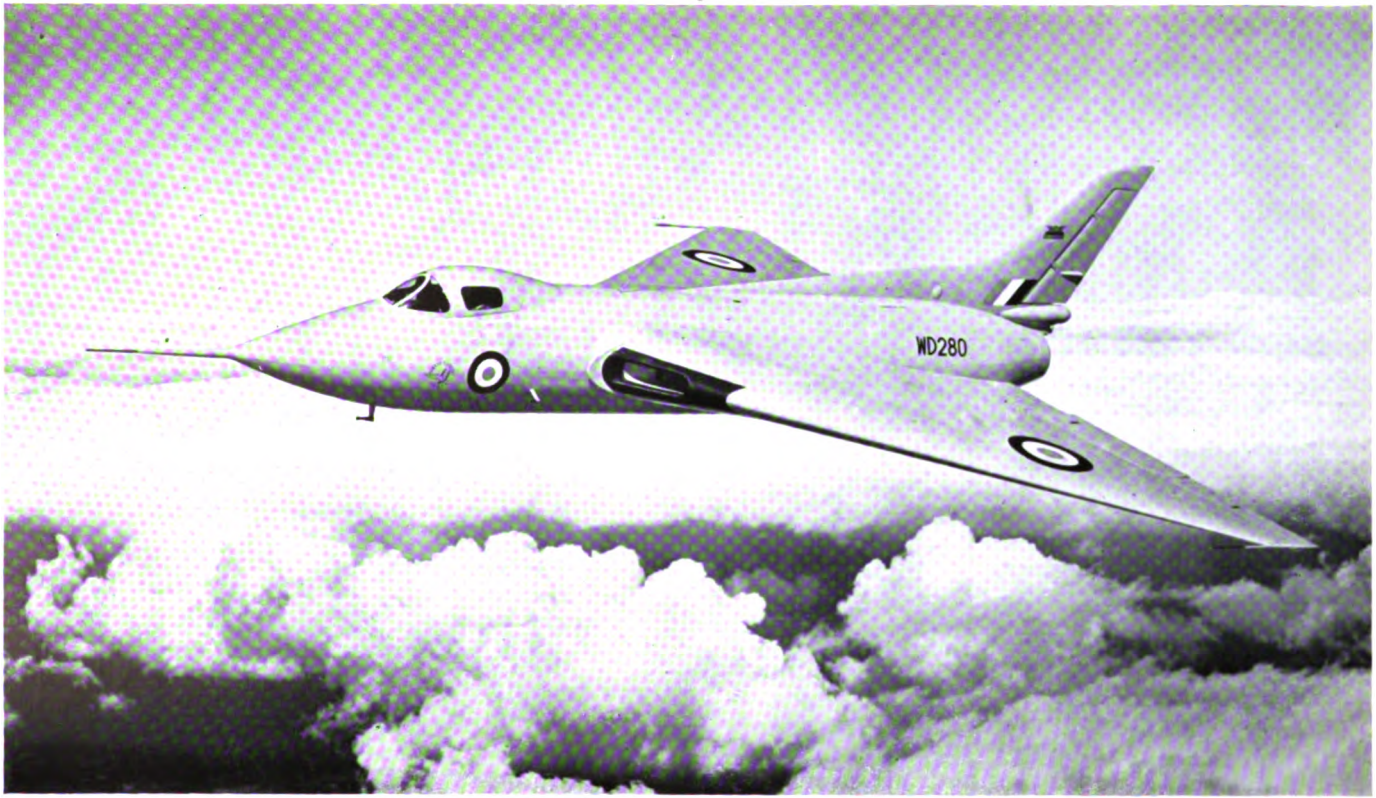

[Avro Photo

The Avro 707A Delta high-speed research aircraft, powered with a single Derwent jet engine, first flew in July, 1951. Note the air intakes at the wing roots; the earlier type, the 707B, has a single intake behind the cockpit on the upper surface of the fuselage

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The aircraft is striped with "bumble-bee" markings so that it can be seen easily at high speed when used as a target for interceptor training.

Production versions will use the Armstrong Siddeley Viper jet engine, Britain's first expendable jet. It will be cheap to produce and will have a total running life of only a few hours.

Rearming with Modern Aircraft

At the sixteenth annual general meeting of the Hawker-Siddeley Group there were some outspoken criticisms on the time-lag in rearming the squadrons of our Air Forces with modern aircraft. The only heartening announcement was the fact that Britain leads the world in modern design and performance of prototype aircraft. Where we fail is in the ability to produce the best of designs in quantity with sufficient speed to keep our Air Force supplied with better aircraft than our potential enemy. At this meeting the Chairman (T. O. M. Sopwith, C.B.E., Hon. F.R.Ae.S.) said:

"A year ago we asked if the air power of the R.A.F., the Commonwealth and our Allies was strong enough to preserve the security and freedom of our people.

"The answer then was 'No.' It is still 'No.' Although our research and experimental prototypes have led the world for years, the R.A.F. is still flying with aeroplanes which are obsolescent.* In the haste of disarmament and retrenchment, orders for the more modern aircraft were not placed in time to ensure that we could outclass a potential enemy. We had the types; but we did not have the production orders for them.

"Now we have the orders required but it is indeed late in the day . . . it takes time to build aeroplanes; time that must be measured not in days or even months, but in years. . . .

"What is the position today as compared with the war years? A modern fighter like the Hawker P. 1067 absorbs nearly three times as much manpower as did its counterpart, the Hurricane, in 1940.

"Manpower is the key to almost all our problems and we *must* beat the manpower shortage."

The Chairman went on to stress the need to speed up the deliveries of materials and machine tools. The time-lag clearly is caused by the delay in obtaining men, materials and machine tools. The need for the speedy rearmament of our Air Force is all too clear to those who are aware of the international situation; there has been adequate discussion on these difficulties over the wasted years; now is the time for forceful action to meet the immediate needs of the British aircraft industry.

The new Hawker fighter (the P. 1067), ordered off the drawing board by the R.A.F., first flew as a prototype in July, 1951, and will undoubtedly be superior to the Russian M.I.G.-15, but some considerable time will elapse before this new fighter comes into service in R.A.F. squadrons.

The P. 1067's sister aeroplane, the Hawker Sea Hawk naval jet fighter, is in production and first deliveries began in January, 1952, to the Royal Navy. Deliveries of the Hawker Sea Fury to the Royal Navy and to Australia and Canada have also begun.

The first of the Avro Canada C.F. 100 all-weather day and night fighters has been delivered to the Royal Canadian Air Force and a production line is in being at Malton, Ontario.

* The Secretary of State for Air, speaking at the annual dinner of the Herts and Essex Aero Clubs last December said: "Obsolescence is a relative term, and I do not want you to believe that the Meteor is not a good aircraft, but in some important respects it is inferior to the Russian M.I.G.-15."

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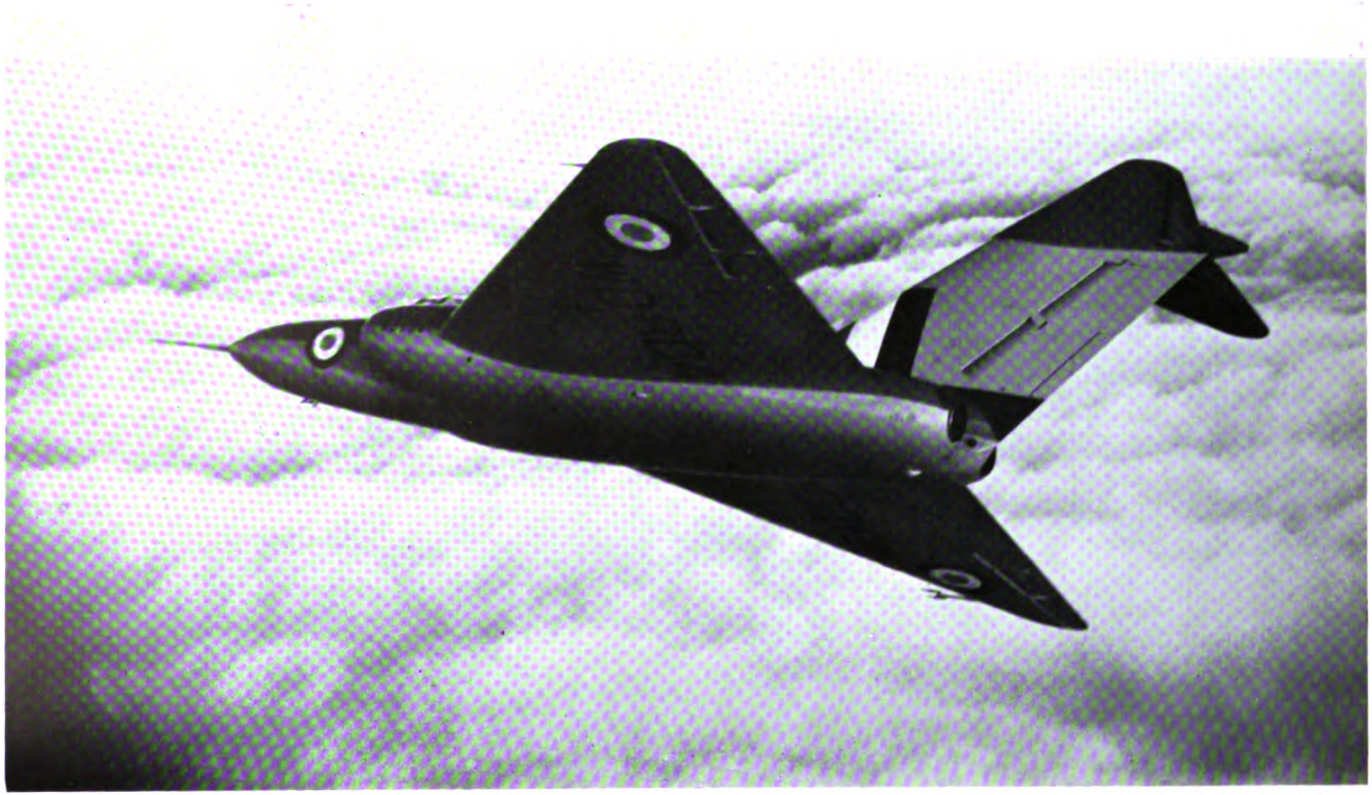

[Photo : Russell Adams

FIRST "IN-FLIGHT" PHOTOGRAPH OF THE GLOSTER GA-5 DELTA FIGHTER

Powered by two Sapphire jets, the all-weather, day and night, long-range fighter. Its performance is secret, but it is the modern effective challenge to potential enemy bombers. A similar aircraft with 7,000-plus thrust, climbed to 39,370 feet in 3 minutes 17 seconds

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The Armstrong Whitworth N.F.11, the deadliest night fighter in operation today, is in production and deliveries have been made to the R.A.F., and in recent exercises this aircraft gave a very good account of itself.

The inevitable shape in aeronautical evolution is said to be the delta wing aircraft. Tests continue on the Avro 707A, which first flew in July, 1951, powered with a single Derwent jet engine, the main feature which distinguishes it from its earlier version, the 707B, being the air intakes at the wing roots. Another delta aircraft, the new Gloster G.A.5, bears the new R.A.F. designation of "multi-purpose fighter." It is a long-range, high-speed, all-weather day and night fighter, powered by two Armstrong Siddeley Sapphires and equipped with extensive air-to-air radar search apparatus.

Of modern types there are plenty; it would indeed be heartening to see them flowing off the production lines and speeding up the rearming of our Air Force.

American Aircraft for Coastal Command

Additional impetus to the expansion of Coastal Command is being given by the delivery of Neptune P2V-5 anti-submarine aircraft from America under the Military Defence Aid Programme.

The Neptunes now at St. Eval were flown from California via the Azores by Coastal Command Lancaster crews who had been trained in U.S.A. for the ferrying of these initial aircraft. These crews are now being used to train other Lancaster crews in turn so that as further Neptunes arrive these aircraft can be put into service with a minimum of delay.

The P2V Neptune has been developed by the Lockheed Company, of California, U.S.A., who were the first American company to supply the R.A.F. with operational aircraft shortly before the Second World War. These aircraft were Hudson aircraft, which were used by Coastal Command in the early stages of the war for coastal patrol.

The Neptune is noteworthy for its exceptional flight endurance, for its ability, through its wealth of radar and electronic instruments, to intercept enemy underwater intruders and, through its heavy armament, to destroy them.

The P2V-5, now in full-scale production, is a mid-wing monoplane embodying two Wright combination piston-turbine engines. It is equipped with latest radar and electronic submarine-detecting devices and carries sono buoys which can be dropped into the sea and can automatically transmit the position and course of enemy submarines.

It can carry mines, torpedoes, bombs, rockets, machine guns and cannon.

It will be used by the Royal Australian Air Force in addition to the U.S. Navy and the R.A.F.

Canberra Jet Bomber Squadrons

Nos. 101 and 617 Squadrons are now operating with the R.A.F.'s first jet bomber aircraft. The aircrews are acclimatizing themselves to flying at over double the top speed of the Lincoln and B-27 bombers, the change from an array of levers and knobs to electric switches and even new types of flying clothing.

As yet there are no dual-control Canberras. Conversion is done by giving the pilot first dual flying on a two-seater Meteor 7, then on a solo Meteor 4 and, after two hours in a Canberra seated beside the pilot, takes his first hour's solo in the pilot's seat, with the instructor seated beside him.

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[*Air Ministry Photo*

FERRYING VAMPIRE JET AIRCRAFT TO THE FAR EAST

From the left : Flight Lieutenants Middlebrook and R. Puda, Flight-Sergeant J. Williams and Sergeant R. H. W. Taylor, who flew the first batch of Vampire Mk. 9 jet fighter-bombers to the Far East from Abingdon airfield

R.A.F.'s Longest Jet Ferry Flight

The longer two-way ferrying flight of jet aircraft is now being undertaken by the Royal Air Force between England and Singapore. The distance to be covered is 17,700 miles.

The aircraft being ferried to Singapore are de Havilland Vampire 9's for the Far East Air Force squadrons engaged on anti-bandit operations in Malaya. The same pilots, who belong to the Transport Command Overseas Ferry Unit, will fly back to England the Vampire 5's now being used by F.E.A.F.

The Vampire 9 is similar to the Mark 5 ground attack aircraft, but is fitted with the Godfrey cold air unit, developed to increase the pilot's comfort and efficiency when flying in tropical climates. The refrigeration unit, which is driven by the Vampire's jet engine, supplies cooled air to the cockpit, and is designed to reduce an average tropical cockpit temperature of 120° F. to a figure in the neighbourhood of 95° F.

Leaving from R.A.F. Station, Abingdon, the Vampires are flying by eighteen stages, with landings at airfields in France, Tunisia, Tripolitania, Libya, Egypt, the Persian Gulf, Pakistan, India, Siam and Malaya.

Battle of Britain Week

Battle of Britain Week will be observed this year from 15th to 21st September; Battle of Britain Day on Monday, 15th September; and "R.A.F. At Home Day" on 20th September.

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Helicopters in Korea

A fleet of H.R.S. Sikorsky helicopters flew an entire company of U.S. Marines to an important objective at the top of a 3,000-ft. mountain peak in Korea. In this single action—the first of its kind in the world—helicopters abruptly and dramatically introduced revolutionary tactics in warfare over difficult terrain. The entire operation, including the landing of 228 fully equipped marines, ammunition, almost nine tons of food, and the laying of telephone wire back to Command Headquarters, took just four hours—two days less than it could have been accomplished on foot. This paved the way for a far larger air-lift less than a month later—the flying of a full battalion of marines, amounting to about 1,000 fighting men, to front-line positions on a Korean mountain.

World's Loudest Siren

The U.S.A.F. have just taken over four of the largest and noisiest air-raid warning sirens. Built by Chrysler, these sirens, which speak in a 170-decible voice, rotate on their bases once each minute and blanket a circular area of fifteen-mile diameter with a deep-throated roar. A six-bladed rotary chopper, a 140-h.p. engine and 3,200 r.p.m. combine to produce this uncivilized uproar.

New Fins for Tanks

Wing-tip tanks with fins on them give additional lateral stability to Lockheed P2V Neptunes. These fins also steer the tanks clear when the tanks are dropped from the aircraft.

Production

According to the American Journal, *Air Force*, Dr. Hugh L. Dryden, director of N.A.C.A., claims that the U.S.A. will soon replace Britain as leader in jet-engine production. . . .

The test model of U.S.A.F.'s *eight-jet* B-52 bomber has been completed and moved from Boeing's Seattle plant for trials. . . .

Convair's new version of the B-36 design, swept-winged and with all-jet power, designated B-60, awaits J-57 engines for its first tests.

Manpower Problem

Manpower is one of the most formidable problems facing the aircraft industry in America today and with increasing production the situation may become increasingly difficult. Already critical is the shortage of engineers. Of the 38,000 (1951) engineering graduates, 30 per cent. were immediately committed to the Armed Services.

A CORRECTION

Messrs. Boulton Paul Aircraft Ltd. have drawn our attention to an error on page 60 of the January number :

The "Exception" delta-wing aircraft should have been quoted as "The Boulton Paul P-111, which is a high-speed research aircraft powered by a Rolls-Royce Nene engine." We apologize for this error and are grateful for the opportunity given to make this correction.

EDITOR.

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SPORT IN THE R.A.F.

BY J. SEPHTON

THE OLYMPIC GAMES

THE XVth Olympaid will be held at Helsinki from 19th July until 3rd August.

Already the governing bodies of the various sports associations and unions are building up their teams and making provisional selections. Those serving in the Royal Air Force will be given all possible assistance in their training. Several nominations of prospective members of the British team have been received and include the following:

Athletics.—Aircraftman G. Ellis (No. 2 Radio School, Yatesbury).

Swimming.—*Aircraftman J. Wardrop and Aircraftman R. Wardrop (R.A.F., Cosford), Corporal D. E. Horne (R.A.F., Uxbridge) and Aircraftman R. Burns (R.A.F., St. Athan).

Cycling.—Aircraftman J. Tighe (R.A.F., Kirton-in-Lindsey), Aircraftman A. Ashmere (R.A.F. Kirkham) and Aircraftman R. C. Stratton (R.A.F., Yatesbury).

Pentathlon.—*Flight Lieutenant L. S. Lumsdaine (H.Q., 2nd T.A.F.) and Sergeant D. Cobley (R.A.F., Cosford).

Shooting.—Air Vice-Marshal W. E. Staton (H.Q., Technical Training Command) and Wing Commander R. F. B. Guy (H.Q., Flying Training Command).

Air Vice-Marshal Staton has been selected to be in control of the Shooting Section, and six trials will be held by the National Rifle Association before the final selection is made. Squadron Leader Willott is a past winner of the King's Prize, and both Wing Commander Guy and Flight Lieutenant Steele are prominent figures in both the civilian and Service shooting worlds.

Aircraftman J. Wardrop was a member of the British swimming team in the 1948 Olympic Games, and is the present National, Inter-Service and Royal Air Force 440 Yards Free Style Champion. His twin brother, Robbie Wardrop, is the Scottish Backstroke Champion. Injury unfortunately prevented him from competing in the British National, Inter-Services and Royal Air Force Championships last year. Corporal Horne is one of the finest high-board divers in the country and has been selected for a specialist's course by the Amateur Swimming Association. He is the present Inter-Service and Royal Air Force Firm and Springboard Champion.

Aircraftman Tighe has already won international honours in the cycling world, being captain of the British team against France at the Vel-De-Hiver track, Paris, in January this year.

Of all sports, pentathlon must be regarded as the most strenuous, as it includes cross-country running, shooting, swimming, fencing and riding.

Flight Lieutenant Lumsdaine is the present International Military Pentathlon Champion and has been the outstanding competitor for the past two years at the Pentathlon Championships of Great Britain. Sergeant Cobley, who is a staff instructor at the School of Physical Training, is a newcomer to this sport. In 1950 he competed in the Royal Air Force Championships for the first time, and in 1951, when competing in the Pentathlon Championships of Great Britain, won the swimming event and was second in the cross-country running.

* Illustrations in the January number of this journal included pictures of Flight Lieutenant L. S. Lumsdaine and Aircraftman J. Wardrop.

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[Air Ministry Photo

Memorial to the late Flight Cadet Sergeant Alastair Black. This ski-ing trophy, by Miss Hazel Armour, was presented to the Royal Air Force College, Cranwell, by Lady Tedder and Captain Hamilton Black, in memory of their son

WINTER SPORTS

In the Royal Air Force interest in winter sports is spreading rapidly, resulting in an increased number of participants each year. It is hoped that we shall see members of our Service among future ski, Cresta and bob-sleigh champions. It certainly encourages "living dangerously" and is fine training for our aircrews.

BEAGLING

In the October, 1951, number of this Journal we published details of the Royal Air Force Beagling Association, recently formed under the chairmanship of Group Captain L. G. Levis, Officer Commanding, No. 3 Initial Training School, R.A.F., Cranwell. Its purpose is to encourage and foster beagling in the Service.

A pack known as the "Per Ardua" (R.A.F.) Beagles is already hunting from the kennels at R.A.F., Cranwell, with eleven and a half couple of hounds. This is the first pack of the Association, and, if successful, will help to promote the formation of other packs in the Service. The hunting season is from mid-October to mid-March, and hunting normally takes place on Wednesdays with extra meetings during the holiday season.

Meets have not only been held in the Cranwell area, but also at R.A.F. Stations, Scampton, Syerston, Spitalgate and Cottesmore.

BOXING

Never before in the history of the R.A.F. Boxing Association have there been so many outstanding boxers serving at the same time. In the recent international match, when England defeated Scotland by 8 bouts to 2, the Royal Air Force were called upon to supply no less than six boxers. Four represented England and two were reserves. In the bantam-weight division, Aircraftman T. Nicholls won on points, Leading Aircraftman P. Lewis won the feather-weight event on

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points, Aircraftman B. Wells won the light-middle event, the referee stopping the bout in the second round; Aircraftman J. P. Maloney, the welter-weight representative, was defeated on points by J. McCartney, of the Nairn Boxing Club.

The Lord Wakefield Novices' Senior and Junior Championships took place at Henlow on 22nd, 23rd and 24th October, during which some 240 bouts were decided, necessitating the use of four boxing rings. The finals attracted a large crowd. The Junior title was won by R.A.F. Station, West Beckham, who entered a full team from a total station strength of 180, which was a most creditable performance.

R.A.F., Cosford, with a team selected from the School of Physical Training, won the Senior trophy.

The Inter-Command competition this year was won by Fighter Command.

The Imperial Services Championships at Aldershot on 8th, 9th and 10th April, will provide a series of bouts of the very high standard expected in Services boxing.

RUGBY UNION FOOTBALL

A new trend was introduced this season in the organization of the *Inter-Unit Shield* and *Cup Competitions*. Stations were entered for the respective competitions according to establishment. The *Inter-Unit Shield Competition* was confined to stations with an establishment of 750 and below, and the *Cup Competition* to units over 750 and including all Flying Training Schools.

A total of fifty-seven stations entered for the *Shield Competition*, which is now in the quarter-final stage. Of the eight remaining teams, six are Headquarters Units of Commands or Groups—H.Q. (U.), No. 1 Group, H.Q. (U.), Technical Training Command, H.Q. (U.), No. 62 Group, H.Q. (U.), No. 41 Group, H.Q. (U.), Flying Training Command, H.Q. (U.), No. 11 Group, R.A.F., Ridgewell, and R.A.F., West Freugh.

In the *Cup Competition*, an original entry of ninety stations was received and the competition is in the fourth-round stage, but the results are not yet predictable. The 1950-51 champions, R.A.F., Halton, are still possible winners, but according to playing records received from clubs, R.A.F., Yatesbury must be classed as favourites, having played some twenty-five games without defeat and scoring approximately 1,000 points.

The *Inter-Command competition* this season was won by Bomber Command, and was their first victory in this competition. The final was played at R.A.F. Station, Halton, Bomber Command defeating Maintenance Command by 21 points to 3.

The *representative Royal Air Force team* has, according to the critics, all that is required of a rugby football team—youth, experience and stamina. Squadron Leader R. H. G. Weighill, the English international, is again leading the side, Flight Lieutenant R. V. Stirling, who has played in all the English international sides this year, is in the front row, and Officer Cadet J. Greenwood, a 1952 Scottish international, in the back row. All the eight forwards stand over six feet, and are pushing their weight. The back division is full of talent, with Flight Lieutenant A. D. Smailes at full-back. Flying Officer M. A. Channer, recently returned from Rhodesia, is at fly-half, Aircraftman G. Griffiths, of Cardiff R.U.F.C., on the right wing, and Pilot Officer A. M. Christie (Harlequins) on the left.

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CONCERNING PERSONNEL

[Air Ministry Photo

Air Marshal Sir John N. Boothman, K.B.E., C.B., D.F.C., A.F.C.

ROYAL AIR FORCE PROMOTIONS AND APPOINTMENTS

Among the promotions and appointments announced by the Air Ministry since the issue of the January, 1952, number of the Journal, are the following:

PROMOTIONS TO AIR RANK

AIR VICE-MARSHAL TO AIR MARSHAL

V. E. Groom, C.B., C.B.E., D.F.C.

Sir John N. Boothman, K.B.E., C.B., D.F.C., A.F.C.

AIR COMMODORE TO AIR VICE-MARSHAL

A. McKee, C.B., C.B.E., D.S.O., D.F.C., A.F.C.

The Earl of Bandon, C.B., D.S.O.

J. G. Hawtrey, C.B.E.

G. W. Tuttle, C.B., O.B.E., D.F.C.

E. C. Hudleston, C.B., C.B.E.

C. P. Brown, C.B., C.B.E., D.F.C.

E. D. D. Dickson, C.B.E., M.D., Ch.B., F.R.C.S.(E.), D.L.O., K.H.S.

[Air Ministry Photo

Air Marshal Sir V. E. Groom, K.B.E., C.B., D.F.C.

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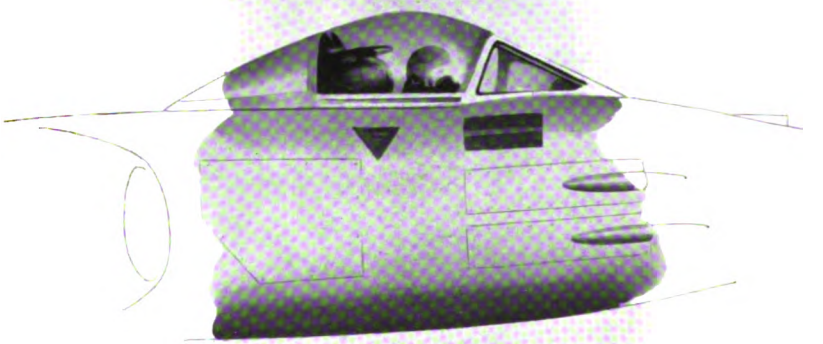

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D. W. Lane, C.B.E.
E. M. F. Grundy, O.B.E.
G. B. Keily, D.F.C., A.F.C.
M. Watson, C.B.E.
H. L. Messiter.
G. P. O'Connell, M.B., B.Ch.
C. A. Rumball, O.B.E., M.R.C.S., M.R.C.P., D.T.M. & H., D.P.M., L.D.S., K.H.P.

NEW APPOINTMENTS

AIR MINISTRY

Air Marshal Sir John W. Baker, K.C.B., M.C., D.F.C., as Deputy Chief of the Air Staff.

Air Vice-Marshal R. L. Ragg, C.B., C.B.E., A.F.C., as Director-General of Personnel (II).

Air Vice-Marshal W. L. Dawson, C.B., C.B.E., D.S.O., as Assistant Chief of the Air Staff (Policy).

Air Vice-Marshal L. F. Pendred, C.B., M.B.E., D.F.C., as Assistant Chief of the Air Staff (Operations).

Air Vice-Marshal L. Dalton-Morris, C.B.E., as Assistant Chief of the Air Staff (Signals).

Air Vice-Marshal W. M. Yool, C.B., C.B.E., as Director of Auxiliaries, Reserves and Air Cadets.

Air Commodore A. G. Adnams, as Director of Operations (I).

Air Commodore W. P. G. Pretty, C.B.E., as Director of Communications Development (Ministry of Supply).

Air Commodore H. H. Chapman as Director of Signals (Policy).

Air Commodore F. J. St.G. Braithwaite, C.B.E., as Director of Plans.

Group Captain J. M. Birkin, D.S.O., O.B.E., D.F.C., A.F.C., as Inspector of the Royal Auxiliary Air Force.

Group Captain I. B. Newbigging, D.F.C., as Deputy Director of Auxiliaries, Reserves and Air Cadets.

AIR ATTACHÉ

Air Commodore J. G. Elton, C.B.E., D.F.C., A.F.C., as Air Attaché in Paris.

IMPERIAL DEFENCE COLLEGE

Air Vice-Marshal C. B. R. Pelly, C.B., C.B.E., M.C., as Royal Air Force Instructor.

NEW R.A.F. AIDES-DE-CAMP TO THE QUEEN

Air Commodore J. H. Edwardes-Jones, C.B.E., D.F.C., A.F.C.
Group Captain R. L. M. Hall, O.B.E.

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BOMBER COMMAND

Air Commodore H. L. Messiter as Senior Technical Staff Officer.

FIGHTER COMMAND

Air Vice-Marshal H. P. Fraser, C.B.E., A.F.C., as Senior Air Staff Officer.

COASTAL COMMAND

Air Vice-Marshal T. C. Traill, C.B., O.B.E., D.F.C., as Air Officer Commanding, No. 19 Group.

Air Commodore D. W. R. Ryley, C.B.E., as Senior Technical Staff Officer at Headquarters.

TECHNICAL TRAINING COMMAND

Air Marshal Sir V. E. Groom, K.B.E., C.B., D.F.C., as Air Officer Commanding-in-Chief.

Air Commodore J. G. W. Weston, C.B., O.B.E., as Commanding Officer of the R.A.F. No. 1 School of Technical Training.

Group Officer A. M. Muir as W.R.A.F. Staff Officer at Headquarters.

TRANSPORT COMMAND

Air Vice-Marshal C. E. N. Guest, C.B., C.B.E., as Air Officer Commanding-in-Chief.

MAINTENANCE COMMAND

Air Commodore A. F. Hutton, C.B.E., D.F.C., as Air Officer Commanding, No. 43 Group.

FLYING TRAINING COMMAND

Air Vice-Marshal E. B. Addison, C.B., C.B.E., M.A., M.I.E.E., as Senior Air Staff Officer.

Air Vice-Marshal A. Hesketh, C.B., C.B.E., D.F.C., as Air Officer in charge of Administration.

MIDDLE EAST AIR FORCE

Air Chief Marshal Sir Arthur P. M. Sanders, K.C.B., K.B.E., as Commander-in-Chief, M.E.A.F.

Air Vice-Marshal D. F. W. Atcherley, C.B., C.B.E., D.S.O., D.F.C., as Air Officer Commanding, No. 205 Group.

Air Commodore C. A. Bell, B.A., as Chief Signals Officer.

FAR EAST AIR FORCE

Air Marshal Sir Thomas M. Williams, K.C.B., O.B.E., M.C., D.F.C., as Air Officer Commanding-in-Chief.

2ND TACTICAL AIR FORCE

Wing Officer E. M. Pither, O.B.E., to be W.R.A.F. Staff Officer.

No. 90 (SIGNALS) GROUP

Air Commodore P. Jones, C.B.E., as Senior Air Staff Officer.

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BOOK REVIEWS

The Struggle for Europe. By Chester Wilmot.

The "publicity blurb" is one of the plagues of our time. Its effect is two-fold: at first encounter it raises one's hopes by gross exaggeration and exalted claims to superlative qualities; on later acquaintance, when one has ceased to be deceived by such claims, it makes one automatically avoid the book or film it describes, on the assumption that any subject that needs such inflated flattery to ensure acceptance by the public must presumably lack the requisite intrinsic merit.

Few recent books have been so widely and sensationally publicized as *The Struggle for Europe,* and as a result, this reviewer approached it with some degree of hostile prejudice and a readiness based on past experience, to be disappointed in its contents. In fact, however, let it be stated that the book is even better than its publicity agents would have us think, and that they have done its author a disservice in harping on its alleged sensational and controversial approach to problems of Allied strategy and command: by contrast the fundamental impartiality and reasoned "hindsight" of this book place it far above, and make it infinitely more valuable than, the prejudiced and acrimonious diatribes to which the publicity would have us believe it is an answer.

Wilmot's book *is* controversial, and it *is* critical. However, he approaches controversial subjects as a historian should, by presenting both sides of the case, by describing the arguments and factors on both sides and by drawing his final conclusions in such a manner that the reader can see how he reached them, on what interpretation of the evidence, and how much of his evidence is fact; how much opinion or estimation.

It is as a critic that the author has apparently drawn most attention to himself, but his merits as a critic have been obscured by the desire to present his criticism as a partisan counterblast to recent publications in the United States. This is a distortion of the facts and a most unfortunate one, since it will tend to produce mere hostility among Americans instead of a reasoned appreciation of the merits of the case. In fact, Wilmot's criticism is unusually laudable for two reasons; he does not provide universal scapegoats, whose every action and motive is found culpable; and he gives credit where credit is due. For example, Bradley is criticized as a strategist and for his attitude to higher command, but his merits as a tactician and a fighting leader are continually stressed; Patton too is censured for his insubordinate disregard of orders, but his qualities of dash, courage, initiative and opportunism are warmly praised. Other Americans are eulogized as highly as any British leaders, and where criticism is applied to an otherwise esteemed figure, e.g., Eisenhower, it is most moderate and reasoned.

Nor should it be supposed that such criticism as is directed at the Allied team is confined to the Americans. Where British individuals or formations are held to be at fault they are as frequently and as ruthlessly criticized as any. Individual units of the British Army are censured frankly and sometimes severely, and from the parochial R.A.F. point of view it is interesting to see that the actions of such acceptedly outstanding leaders as Cunningham, Leigh Mallory and Harris do not escape adverse notice. As a whole, the achievements of the R.A.F. are generously appreciated, but where errors were made, they are firmly pointed out, e.g., the prolongation of the area type of bombing attack, and the over-cratering of such targets as Caen, Wesel and Cleve.

Generally, therefore, there is no unfair discrimination made: our military setbacks are blamed just as much on British over-caution and fear of casualties as on American failure to concentrate and over-optimism. On the other side of the picture as much credit is given to Roosevelt for enforcing the "Germany first" policy against such Anglophobes as Admiral King as there is blame for misunderstanding Stalin's motives and personality; as much praise is given to Eisenhower for moulding and retaining the Allied Command team as criticism for his defects and inexperience as a practical strategist.

There are many other facets of the greatest interest and value to be found in this book; the above has only been discussed at length because of the unwarrantable limelight that has been shed on it. Above all, perhaps, the discussions on Hitler's personal direction of the war, the Fuehrer Princip, and on the ambitions of Russia and Anglo-American failure to understand or oppose them, are particularly interesting. The style of the narrative is almost as gripping as its content, and, on occasions where the author was present or had first-hand information, e.g., the vital pre-D Day conferences, the preliminary parachute assault in Normandy, and Arnhem, is as vital and graphic as any contemporary historical writing.

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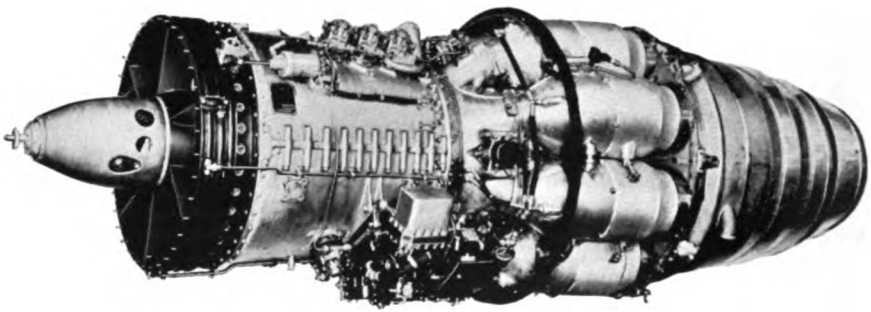

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To sum up, this is a book of unusual merit and value for the present and for the future; its merit lies chiefly in the quality which it might be thought to lack, the ability to bring a wholly dispassionate power of critical hindsight to the past, and produce lessons for the future. It should be read, and read thoroughly and carefully, by all who have an interest in that future and the part we may have to play in it.

C. N. F.-N.

The Happy Valley. By Jules Roy. Victor Gollancz Ltd., 14 Henrietta Street, London, W.C. 224 pp. 12s. 6d.

Jules Roy was one of the gallant company of Frenchmen who served in Bomber Command during the Second World War, and this novel is based on his personal experiences during sorties which took him over "The Happy Valley," as the R.A.F. named the formidably defended Ruhr, and over his own country. In France it has won him the Prix Renaudot, and high praise from Emile Henriot, of the Academie Française, who commended it as "the human testimony of a soldier, written in the coarse language of the soldier, with his masterly clear-sightedness. I almost hesitate to point out that to his exceptional virtues as hero without self-complaisance, between his weariness, his fears, and his recoveries, the author of this book adds the talent of being able to say and to depict what he knows; he is a portrait painter of exceptional men, a painter of things not yet seen, the earth in flames under him, the sky exploding all around him; his thoughts clear meanwhile. So far the greatest book of the war."

Even if one cannot agree entirely that this novel is greater than, say, Richard Hillary's *Last Enemy*, or the Polish Air Force history, *Destiny Can Wait*, there is no disputing the fact that it will have an enduring place in aviation literature, for in Jules Roy France seems to have found a worthy successor to the late, great Antoine de Saint-Exupery. Like Saint-Exupery, he has the rare gift of being able to convey to the chairborne all the terrible beauty of war flying—the airman's detached, almost unreal viewpoint as he drops his bombs on unknown people in unseen cities, and in turn becomes one of the card-indexed *x* per cent. of airmen plucked from the sky by gunners who fire at machines, not men, and count their success in twisted metal. He sees his enemies as "men justly fighting an unjust war, men dying as saints for the sake of tyrants simply because they are loyal sons of their country, and their country has thrust them into the abyss."

Certainly no novelist has ever before carried his readers so effectively from the comfort of their armchairs into the cramped, blackened cockpit of a Halifax bomber, suspended in space between hundreds of other invisible bombers, which at any moment might loom out of the darkness with terrifying speed and deadliness as sure as an enemy shell. One forgets that his hero, Chevrier, is a paper hero; but this is as it should be, for Chevrier, his comrades and Halifax B for Beer had their living counterparts at every one of Bomber Command's multitude of war-time airfields.

J. W. R. T.

The Campaign in Italy. By Eric Linklater. Her Majesty's Stationery Office. Illustrated. 12s. 6d.

This is the second of eight volumes of "a popular military history of the Second World War by various authors." Factually, it is well written—as one would expect from Eric Linklater—accurate, unbiased and well documented with fifty-one maps. Historically, therefore, it is a valuable reference work; but one doubts if it will justify its description as popular reading.

To start with, *The Campaign in Italy* is a story of events and units rather than of individuals. Private Smith can read accounts of every action in which his battalion fought, but he will not find his own name, or those of his comrades. Pilot Officer Jones will find a few isolated references to the work of the Allied air forces, but no real picture of their continuous influence on the campaign as a whole. Able Seaman Tarr will gain the impression that the Navy played little or no part in the struggle. And the great mass of potential civilian readers will not bother to wade through its 469 pages, because there are very few accounts of individual deeds of valour, and scanty background details to bring the narrative to life. In short, Mr. Linklater has drawn a series of verbal arrows, moving up a map of Italy from Sicily to the River Po, with no glamour to give the story popular appeal.

Nevertheless, the very absence of personal references lends emphasis to the grimness of a campaign in which the infantry and armour of many nations waged a seemingly endless, heartbreaking battle against a brave and skilful enemy, and the weather, which sometimes took a greater toll of casualties than the German army. One can read of an American unit which *marched* fifty-four miles in thirty-six hours; of gallant Polish regiments who fought

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their last great battles knowing that the war was already lost for them at Yalta; of British soldiers who carried on fighting beyond the normal limits of human endurance to hold untenable positions. Above all, one can speculate on how great and speedy would have been the victories of Alexander and Mark Clark had they had enough men, supplies and equipment of the right sort at the right time to give their armies a fighting chance. Next time, courage alone may not be sufficient to sway the balance.

J. W. R. T.

NEW BOOKS

AIRCRAFT

Modern European Helicopters. By A. H. Lukins. (George Ronald, 2 Alfred Street, Oxford; 3s. 6d.)

BIOGRAPHY

Famous British Generals (Cromwell, Marlborough, Wellington, Kitchener, Haig, Allenby, Wavell, Alexander and Montgomery). By B. Parker (Editor). (Nicholson & Watson, London, 1951; 12s. 6d.)

ENGINEERING (Aeronautical)

Aerodynamics of Supersonic Flight: Air Introduction. By A. Pope. (Pitmans, London, 1950; 25s.)

Gas Turbines. By H. A. Sorensen. (Ronald Press, New York, 1951; $6.50.)

The Wright Brothers as Aeronautical Engineers. Pamphlet issued by the Smithsonian Institution, Washington.

HISTORY (General)

Pétain: Patriot or Traitor? A history of France during the occupation. By S. Huddleston. (Dakers, London, 1951; 15s.)

HISTORY (Military)

Norway; Commandos; Dieppe. (Second World War, 1939-45.) By C. Buckley. (H.M.S.O., 1951; 10s. 6d.)

Cross-Channel Attack. (The U.S. Army in the Second World War, European Theatre of Operations.) By G. A. Harrison (Department of The Army, Washington, 1951.)

Long-Range Desert Group in the Mediterranean. By R. L. Kay. (New Zealand War History Branch, Wellington, 1951.)

The Campaign in Italy. (Second World War, 1939-45.) By E. Linklater. (H.M.S.O., London, 1951; 12s. 6d.)

The Assault on Rabaul. Operations by the Royal New Zealand Air Force, December, 1943, to May, 1944. By J. M. S. Ross. (New Zealand War History Branch, Wellington, 1949.)

POLITICAL

Mission With Mountbatten. By A. Campbell Johnson. (Robert Hale, London, 1951; 25s.)

WARFARE

War in The Twentieth Century. (A Lecture.) By P. A. Reynolds. (University of Wales Press, Cardiff, 1951; 2s. 6d.)

Panzer Leader. By General Heinz Guderian. (Michael Joseph, London, 1952; 35s.)

The Struggle for Europe. By Chester Wilmot. (Collins, London; 25s.)

Hitler's Strategy. By F. V. Hinsley. (Cambridge University Press; 18s.)

Summing-up on Russia. By Stephen Graham. (Benn, London; 18s.)

The Army Air Forces in World War II. Vol. III—Europe, Argument to VE Day. Edited by W. F. Craven and J. L. Cate. (University of Chicago Press; $8.50.)

NOVELS (Fiction)

Coral Circus. The story of an uncharted island in the Pacific and of four Fleet Air Arm pilots who found themselves stranded on it. By John Joly. (Cassell, London, 1952; 10s. 6d.)

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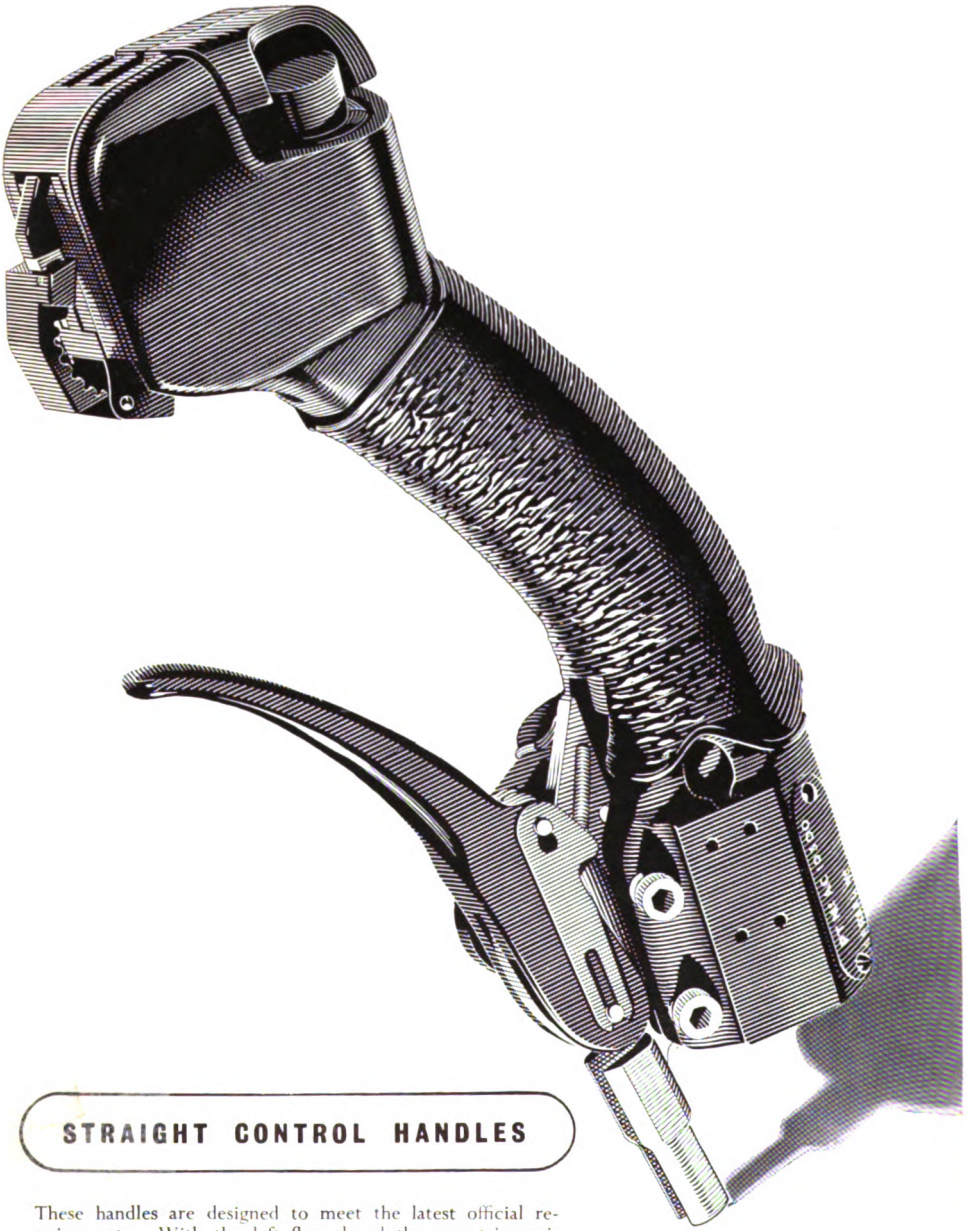

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THE R. A. F. QUARTERLY
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JOURNAL

EDITOR
GROUP CAPTAIN A. H. STRADLING, O.B.E., R.A.F. (RET.)
Assisted by an Air Ministry Advisory Committee of members of the Royal Air Force and Air Forces of the Commonwealth

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EDITOR.

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EDITORIAL

FIRST THINGS FIRST—AIR POWER

MUCH has been written by experts on "balanced forces," but the interpretation of this, *vis-à-vis* wars of the future, is very different from its interpretation for wars of the past. The composition of any such sea-land-air force has always been governed by the task it was expected to undertake. Are we certain that our plans provide a striking power most likely to defeat Russia?

Let us consider first the building up of large land forces.

Can we hope to match the numerically greater Russian armies-in-being, supported by huge reserves of manpower and by formidable tactical air forces? Is it hoped to hold up the Russian hordes, with our numerically inferior land forces, until they can be supported by the necessary divisions from America? Can we rely on bringing these vital reinforcements safely across the Atlantic Ocean? Today the greatly increased range and striking power of modern aircraft and vast fleet of the new types of submarines already available to the Russians would make the transporting of armies from America by sea a much too hazardous undertaking; particularly at that early stage in the war when we should be in conflict with the full strength of Russian air power and when the speedy arrival of large ground reinforcements would be vital to the success of our military operations.

Even if part of our Tactical Air Forces were diverted to assist in the struggle for command of the air over our armies, in view of the present strength of the Russian Air Force, in comparison with that of the Western Powers, would not too great a proportion of our air strength be required in local support of such land forces? *Could we afford to detach them from more immediate and vital tasks?* The combined resources of the Western Allies could not provide sufficient air strength to meet both commitments.

But our commitments in a war on land could not be confined to Europe. The vastness of the Communist-controlled portion of the world and the population involved surely makes the prospect of the old type of land war unthinkable. With a population of now over 769,000,000 spread over at least 14,000,000 square miles, any thoughts of invasion and occupation become fantastic.

There is a final argument against the building up of large armies. It undermines the alternative means of dealing with the situation by Air Power. It deprives the Air Forces of the essential manpower for such a task, particularly of the thousands of urgently needed skilled tradesmen and vital war materials.*

We hesitate momentarily, much as a swimmer does before plunging into a turbulent sea, before entering into what may be the troubled waters of an old controversy. Let us first pour oil on these troubled waters! The American and British Navies have ever had a warm corner in the heart of every American and Briton, and their glorious traditions will for ever shine in the eyes of their peoples. Nevertheless, they are no longer the safe bulwark of our shores. Even in carrying out their primary object, to control sea communications, they are now entirely dependent upon Air Power, and equally so for their continued existence as fighting forces. We do not have far to seek for examples of the dependence of either the American or British Navy upon adequate air cover or the results of ignoring this threat from the skies. Pearl Harbour and the loss of H.M.S. *The*

* This applies equally to the building of large navies.

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Prince of Wales and H.M.S. *Repulse* are still vivid tragic memories; these disasters happened *before* modern development of today gave added striking force to Air Power.

Our life-lines across the ocean are essential to enable us to eat, and to receive supplies needed to maintain a war against so formidable an opponent as Russia. If at the outset of such a war we lost command of the air, those supplies could never be brought to these shores. Should any portion of them survive the hazardous journey, there is the probability that the destruction here would be so great that they would be of little use.

With the building up of large naval power in mind, are we wise to risk so much air power in many small, vulnerable floating aerodromes? or even to divide the air strength of either nation under dual control which, in time of direst need, might unnecessarily complicate our throwing *all* our air strength at the enemy in a second "Battle of Britain"? Air Power extends over land and sea, and the air arm of the Western Powers would undoubtedly be strengthened if it was unified under one control, in the hands of those whose whole experience and training have been concentrated upon the proper use of Air Power in its widest sense.

Should the storm break, the first battle will be for command of the air. Never again can we follow the British precedent of "losing all battles but the last." We must win the first battle or we shall, for the first time in our history, have lost the "last battle."

LET US TAKE FIRST THINGS FIRST

Conditions have changed fundamentally. Today, as never before, surface forces, whether on land or sea, are utterly dependent upon command of the skies above them by their Air Force. Should the Russian Air Force obtain for any lengthy period command of the air above our surface forces, our navies and armies would be neutralized even more effectively than were those of Hitler in the closing stages of the last war.

AIR POWER HAS ARRIVED AT A STAGE WHEN, BY ITS OWN ACTION, IT CAN DESTROY AN ENEMY'S CAPACITY TO WAGE WAR. It is this fact and this alone that is likely to deter Russia from throwing us all headlong into a Third World War. Let us therefore concentrate to the right degree on building up Air Power.

The extended range of modern heavy bombers and the possession, by the U.S.A., of a large stock pile of atomic bombs, is, no doubt, the reason why Stalin has not used his military superiority already. Only a year ago Mr. Churchill stated in the House of Commons: "I am in favour of efforts to reach a settlement with Soviet Russia . . . while the immense and measureless superiority of the United States atomic bomb organization offsets the Soviet predominance in every other military respect. . . ."

If, therefore, it is because of the deterrent effect of Air Power that we still have peace today, should we not give every preference to increasing our united air strength?

Air Power is a bargaining factor and the sooner we have it the better, not only for the avoidance of war, but for bringing about the liberation of those peoples enslaved by Russia. Only when the Communists are back behind their own frontiers can we hope for the lasting peace we all so earnestly desire.

One of the earliest essentials in "First Things First" is the rearming of *all* our squadrons with aircraft comparable or better than those of Russia. There seems to be a move in this direction, for did not Mr. Churchill say during the debate on

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defence in the House of Commons on 5th March this year: "I have directed that super priority should be given to the production of the latest and best types of fighter aircraft."

There is more that is required to meet what Mr. Churchill described as "our greatest need . . . modern aircraft *in the Squadrons*." (There was no exclusive mention this time of fighter squadrons.) Perhaps the promise of this requirement for something more than fighter aircraft is to be found in the new determination of policy stated by the Secretary of State for Air when presenting the Air Estimates. He said: "The rate of progress must be related to economical and financial conditions, but whatever the difficulties, the need is such that the most urgent requirements of the Royal Air Force will have first call on the national resources."

CONCLUSION

We do not for one moment suggest that, when planning to defend ourselves against Russian aggression, we should not fully consider the provision of *adequate* naval and military forces for that war, but our criticism of present strategy is the tendency to build large armies to accomplish a job that could be more economically achieved in life and material by Air Power.

This criticism also draws attention to the effect of diverting manpower and supplies urgently required for our Air Forces to other arms of the Services. Last but not least is the division, under Naval and Air Force control, of Air Power which will undoubtedly be needed to gain command of the air over this country at the very outset as well as the equally important task of destroying the enemy's air bases and air supplies.

To ensure command of the air must be the first consideration of any plans to meet the launching of a war of aggression by Russia, or to give us the necessary armed strength to deter her and lead us into the path of, at least, "Peace in our time."

The contents of this publication are the views of the Editor and authors and are not to be construed as carrying any official sanction.

The purpose of this journal is to stimulate healthy discussion of Air Force problems which may ultimately result in improvement of our national security.

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LAND FORCES IN AN AIR AGE

By Air Marshal Sir Robert Saundby, K.B.E., C.B., M.C., D.F.C., A.F.C.

So many soldiers and sailors, since the last war, have recorded their views on the use of air power in the future that I make no apology for discussing the possibilities and limitations of the use of land forces in Western Europe if a third world war should be thrust upon us.

I am moved to do so after reading Lieutenant-General Sir Giffard Martel's latest book, "East versus West."

General Martel is a very distinguished exponent of the art of mobile armoured warfare. One of the original Tank Corps officers, he commanded our armour in France in 1940. Later, after Dunkirk, he commanded the armoured forces at home, and played a great part in the organization and training of the armoured divisions which fought in North Africa, Italy and Western Europe. He has made a close study of the handling of the German armour by Guderian, Rommel and others.

In the spring of 1943 he was sent to Russia as head of the British Military Mission. There he had opportunities of discussing with Russian commanders the handling and tactics of the German armour during its tremendous advance into Russia, and he learned much about Russian views and tactical ideas. Few senior British officers can equal his experience of armoured forces, and he therefore speaks with great authority on their organization, training and tactical handling.

In Europe the First World War, after the German advance in the autumn of 1914 had been halted, developed into a war of position. For four years the Allied and German armies faced each other without significant gain or loss of territory, until the forces of attrition and the pressure of our sea blockade brought about the German defeat. It was in these circumstances that the idea of the tank was born. It was a product of siege-warfare conditions, and was mainly intended to break through the immensely strong linear defences that had been built up on the western front.

But, as General Martel says, "after the First World War all nations concentrated on the types of forces in the army which had played the main part in that war. Infantry and artillery formed the basis. . . . The great part played by the heavy tanks during the war was acknowledged, but the authorities considered that their success was due to the special siege-warfare conditions that existed in the war. The authorities . . . did not believe that those clumsy tanks would ever be fast enough or light enough to be used in mobile warfare."

Many officers of the Royal Tank Corps did not agree with this official view. They believed that "fast tanks, suitable for mobile warfare, could be invented and built which would overcome this difficulty. . . . We felt sure that the great victories of the past could be repeated by the use of mobile warfare in modern form. We realized, however, that if a nation failed to achieve a decisive success with mobile warfare at the start, then some form of position warfare was likely to set in. . . . It is for this reason that armies have always consisted of two parts. We have had the mobile troops (cavalry), whose duty it was to locate the enemy, strike wherever he was weak, work round and attack him in flank and rear and disrupt the enemy by attacking his rear headquarters and communications. In addition, we have had the slower-moving, harder-hitting troops

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(infantry), whose main duty was position warfare, i.e., holding or breaking through strong defences."

But, unfortunately, after the First World War the War Office continued to believe in the impregnable strength of linear defences, and refused to listen to the views of those with experience of armoured warfare. The Tank Corps was reduced to one weak Brigade, and the writings of men like General Fuller, Liddell Hart and others went unheeded, as far as official policy was concerned.

When some expansion of our armoured forces was at last put in hand, the Tank Corps was cold-shouldered, and cavalry regiments were converted into tank and armoured-car battalions. The new armoured force that arose was thus largely cut off, intellectually, from the body of doctrine and experience which had been built up in the old Tank Corps.

The result was that we entered the Second World War with no tanks of outstanding quality and with few commanders who had either experience in the handling of armoured forces or confidence in what they could achieve.

It was far otherwise with the Germans. On their own admission, they had read and profited by the writings of our tank experts. By means of intelligent use of armoured forces they overran Poland, and defeated the Allied armies in France in a few weeks. In the general consternation caused by these defeats, one would almost have thought that the tank had been invented by the Germans and sprung on us as a surprise in 1939, instead of having been invented by us in 1915, and neglected for nearly a quarter of a century.

In the later stages of the Second World War the Army decided to concentrate on the design of one general-purpose tank. This was due mainly to the views of Field-Marshal Montgomery, whose experience of armoured forces in the Mediterranean theatre led him to believe that only one type of tank was needed. The result of this decision was the Centurion tank.

General Martel strongly condemns this decision, and there can be no doubt that he is right. It is quite clear that a heavy tank is needed to work with the infantry, for supporting the "set-piece" assault and for strengthening the defence. Such a tank, indispensible for these purposes under modern conditions, is unsuitable for the task of deep penetration, working round the enemy's flanks, and threatening his communications. For this role it is too heavy and too slow, and requires too much fuel. It also needs heavy maintenance and bridging equipment.

For this mobile role—the role of cavalry in the past—a lighter, faster tank is essential. The mobile armoured divisions must be able to keep up the momentum of the attack, to withdraw quickly when threatened, and to move fast enough to keep the enemy guessing as to where the next attack will come.

The Centurion tank is not sufficiently heavily armed and armoured for the task of infantry support. It would be knocked out by heavy tanks of the type of the German Royal Tiger or the Russian T.44 or "Stalin." On the other hand, it is insufficiently mobile to be successful in the "cavalry" role. It is to be hoped that steps have now been taken to build two types of tank for the future, but it will be years before the Army can hope to have tanks which would enable its armoured force to be used in accordance with the correct tactical doctrine.

General Martel goes on to make a case for the use of armoured forces in a mobile role against the Russian hordes, should they attempt to advance into Western Europe.

"Russia," he says, "is committed to a large manpower army. It may be that from a military point of view Russia would prefer to have a much smaller but

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highly mechanized army . . . but this army could not possibly carry out the vital duties of internal security in peace time, which seem to fall so constantly on the Russian Army. . . . But when she has an army of such great numerical strength it is quite impossible for Russia to introduce any large measure of mechanization into that army. . . . Even the U.S.A., with their huge industrial capacity, would need many years to do so. Russia herself could not begin to look at this problem." He emphasizes the Russian shortage of M.T. and says: "I feel fairly sure that a large proportion of the regimental transport in the Russian Army today is horse-drawn or would become horse-drawn in war, because the mechanical transport would break down in due course and the Russians would be unable to replace the vehicles. They have a proportion of highly mechanized troops, and these are used at times to put on an attractive display on the Red Square in Moscow or at times in the Balkans. These demonstrations are impressive and well carried out, but I feel that they are mainly arranged to cover the shortage of mechanical transport in the army as a whole."

General Martel estimates that the Russians have about forty armoured divisions. "Of these forty," he says, "some are no doubt up to strength as armoured divisions, but the rest are just tank brigades with small additions of mechanized infantry or artillery in some cases. The tank brigades have anywhere between 50 and 100 tanks per brigade. I believe that the remaining 135 divisions out of a total of 175 are ordinary infantry divisions but organized in various ways and with varying strength, but that the average would be just over half the strength of our divisions."

Describing the correct way of defeating an attempted Russian advance into Western Europe, he says: "The Western nations will have to use part of their forces to hold bases and centres of resistance while their mobile armoured forces work round the flanks and behind the enemy. . . . On our side there would be no question of trying to hold a line. . . . The role of the armoured divisions would be to cause demoralization and panic in the Russian forces by working round behind them. . . . The use of armoured mobile forces in this role has now proved so successful on so many occasions that there is no reason to suppose that they would fail when used again in this way."

Considering the Russian counteraction, General Martel says: "I do not believe for one moment that these Stalin tanks will be able to protect the Russian Army, with all its vulnerable horse-transport, from attacks by the well-trained mobile and armoured forces of the Western Nations."

Summing up, he says: "In the technique of making full use of both the armoured and supporting arms we are well ahead of the Russians, and this should give us a considerable advantage in any battle between our armoured divisions and those of the enemy. . . . We will cause them very heavy casualties and loss of morale, which will lead to their defeat."

So far, in this book, General Martel has scarcely mentioned air power. One might think that the powerful and very numerous Russian tactical aircraft would be a serious threat to mobile armoured forces. General Martel realizes that our armoured forces would need powerful air support and says: "The R.A.F. are not very enthusiastic over operations of this nature. . . . The Navy are quite prepared to admit that their duty is to retain command of the seas, so that we can continue to live in these islands and so that the Army can be moved to wherever it is needed. The R.A.F. are not so minded. Of course, they will have a great task in maintaining air superiority over this country and over our bases abroad. Their second task is the support of the land forces. Their third task—and a long way third—is the long-distance bombing."

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In order to facilitate this use of our air forces he favours the idea that we should leave long-range bombing to the Americans and that "the R.A.F. should concentrate mainly on providing highly trained tactical air forces for use with the Army and on the fight for air superiority." He realizes that bombing is closely connected with the latter.

If the Western Powers could rely on achieving victory on land over the Russian horde by the use of mobile armoured forces of modest size, there would be much to be said for preparing ourselves to fight in this way. But I think that the risk of failure would be very great.

The Russians, being the aggressors, would have the initiative. We should not know at all precisely when or where the blow would fall. Our armoured forces, whose peace-time dispositions would be known, might be overrun or outmanœuvred at the start, and their effectiveness destroyed. Only in the most favourable circumstances could the plan succeed. And if it failed the disaster would shake the foundations of the Free World. We should be thrown back with no defence but our air power. If the bulk of that had been tied up in tactical forces, much of which would probably have shared the fate of our armies and little of which would be any use either for air defence or long-range bombardment, our position would be desperate.

But there is an even stronger reason for my inability to put any faith in General Martel's plan. Air power has grown up since the spectacular successes of the German armour in 1940-41. Is it conceivable that the Russians would leave our bases and communications alone while we were trying to work round their flanks with mobile armoured forces? Surely they would use such atomic bombs as they might possess to destroy our bases and centres of resistance, and the ports on which our forces and the Americans must rely for their supplies? And surely they would intensely attack our sea lines of communication from the air and from under the sea?

It is impossible to believe that we could maintain land forces on the Continent until we had defeated the Russian air forces.

General Martel contrasts the attitude of the R.A.F. towards the Army with that of the Navy. But the Navy, nowadays, has little or no offensive power. Its job is to maintain our sea communications and, where possible, to deny the sea to the enemy. Even this it can no longer do within air-striking range of a land mass dominated by enemy air power. Its role is defensive and limited.

But air power is now the supreme offensive force. It dominates all warfare by land and sea, and has the power of selecting and destroying any target of importance to the enemy's war effort. It is fantastic to suggest tying this eagle to the tortoise of armoured warfare on land.

As long as we have armies we must have tactical air forces to support them. But, in so far as their existence diverts effort from and weakens the main air offensive, they must be kept to a minimum.

To attempt to defeat Soviet Russia by means of land forces would be to play straight into their hands. As Major de Seversky says in his latest book*: "Soviet Russia will never be deflected from its expansionist aims by universal military training in the U.S.A. and the resurgence of armed divisions in Western Europe. Those things mean land war, in which Soviet Russia holds the trump cards."

Early in his book General Martel says: "There is always a strong inclination to assume, after a great war, that the type of organization and equipment which was used with success during that war is what we will require for the next war."

Is that not exactly what he has done himself?

* *Air Power: Key to Survival.*

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WHY STALIN WAITS

By J. M. Spaight, C.B., C.B.E., LL.D.

THE RUSSIAN MYSTERY

WHY does not Stalin strike? It seems hardly to be in character that he should refrain. He sees a dozen or more nations re-arming feverishly, a barrier of steel rising around him, a gathering of the clans of democracy, and all for one purpose: to keep him in check, to "contain" him. The process is far from complete. Why has he not interrupted it? He has had far larger forces than the West. He may no longer have such a great preponderance in a year or two. One would have expected him to move westward before he was hemmed in. Yet he has waited. Why? Is it that he was biding his time until the Treaty for the European Defence Community had been signed by the six member States, including the Federal German Republic? Will the German participation be the last straw? Will it goad him into pouring his massed legions over the Elbe and on to the Rhine, claiming that only thus can he safeguard the Soviet Union from the danger that threatens its security? Or are all his great armaments, his bristling bayonets, his paraded readiness for war, only evidence of precisely the opposite intent to a warlike one and nothing but a huge bluff, inspired by a very real fear? One cannot tell.

Mr. John Gunther, in his recent book on General Eisenhower, gives eight reasons for regarding a Russian aggression as "not an imminent probability." They are: America's bigger stockpile of atomic bombs; her Strategic Air Force and "the skein of air bases" from which it could launch an assault on Russia's industrial centres; the Allies' command of the sea; the fourfold superiority of the United States in steel production; the remembrance of the fourteen million Russian casualties in the last war and the danger that a repetition of the carnage might lead to an internal revolt in the Soviet Union; the doubtful loyalty of Poland, Hungary and (especially) Czechoslovakia; the hope that the German problem will be settled to Russia's advantage; the belief that Russia's present tactics of cold war with limited aggression by her "proxies" is a better policy for her than formal war would be.*

THE THREAT IN THE AIR

Mr. Gunther refers, it will be seen, to the threat of a strategic air offensive against Russia's industrial centres as a reason, *inter alia*, for her continuing inaction. No doubt that threat weighs with Stalin. Certainly there have been enough predictions of the fate which is in store for the big cities in the next war. What they suffered in the last will be, we are told, to what they will suffer in the next as a scourging with rods to a scourging with scorpions. One wonders, nevertheless, if this danger is as weighty a consideration in the counsels of the Kremlin as it would be in those of a democratic Government more mindful of the welfare of the people. Nor is the danger to the great industrial installations which might be put out of action taken very seriously. They are thought to be safe. "It would be treason even to hint that Magnitogorsk could be erased from the map or that Soviet industry as a whole could be put completely out of action."† It seems probable that Stalin is thinking less of such dangers than of

* John Gunther, *Eisenhower*, 1952, pp. 132-3.
† Stephen Graham, *Summing-up on Russia*, 1951, p. 115.

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that to two other pillars of his Marxist temple, pillars whose collapse might bring the whole structure crashing down. He cannot but be aware that Russia has two weak spots, blows at which would have a more disastrous effect upon her fortunes than any aimed at her towns or armament factories. They are her railway system and her oil resources. It was the bombing of these two classes of objectives by the Anglo-American air forces in 1944-45 that shattered Germany's war economy. The two great campaigns against transportation and oil targets did more than all the attacks on the cities to bring about Germany's defeat.

THE LESSON OF THE LAST WAR

The attacks on them, the United States Strategic Bombing Survey considered, "contributed powerfully to the collapse of the Reich."* They made the prospect of effective resistance to the Allies' land invasion hopeless. The attack on the synthetic plants and refineries left Germany drained of oil. "The attack on transportation," said the Survey, "was the decisive blow that completely disorganized the German economy. It reduced war production in all categories and made it difficult to move what was produced to the front. The attack also limited the tactical mobility of the German army."†

In Japan a sustained attack on transportation had hardly got under way at the time the war ended; and attack on the oil refineries became superfluous when Japan's merchant fleet was destroyed and overseas supplies of crude oil ceased. The air offensive was directed against the industrial towns, but, the Survey considered, it would have paid better to attack transportation. As it was, the United States Army Air Force did an enormous amount of damage to the centres of production, especially from March, 1945, onwards, when it began to drop incendiary bombs in very great quantities. In all, 160,800 tons of bombs, high explosive and incendiary, were dropped on Japan's home islands, nearly two-thirds of this tonnage being dropped on towns. Little was done to wreck rail communications. That, says the Survey, was a mistake. It estimates that 5,200 tons of high explosive bombs, dropped on railways, tunnels and bridges, would have strangled Japan's economy more effectively. "This strangulation would have more effectively and efficiently destroyed the economic structure of the country than individually destroying Japan's cities and factories. It would have reduced Japan to a series of isolated communities, incapable of any sustained industrial production, incapable of moving food from the agricultural areas to the cities, and incapable of rapid large-scale movements of troops and munitions."‡

RUSSIA'S RAILWAYS

Russia is more dependent on railways than Japan was, or is. Her roads and waterways are unusable for a considerable proportion of each year. In peace and in war alike rail traffic is of vital importance to her, economically and strategically. To Russia, it has been said, her network of railways is what Britain's mercantile marine is to her.§ It links the isolated communities of her vast empire of the land. In war its importance is all the greater because of another development of the past few years in the Soviet Union—the movement or establishment of industrial undertakings to or in the east and the consequent

* U.S.S.B.S., *Over-all Report (European War)*, p. 39.

† U.S.S.B.S., *Summary Report (European War)*, p. 12.

‡ U.S.S.B.S., *Summary Report (Pacific War)*, p. 19.

§ P. E. Garbutt, *The Russian Railways*, 1949, p. 12.

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increase in the distances for which carriage of their products is necessary. Russia, says General Fuller, has adopted a policy of dispersion to secure her industries from air attack, with the result that they are remote from the probable theatres of war and the interlocking communications could be destroyed. "Actually, there would be no need to destroy the industrial centres themselves, for if the few main rail junctions of the U.S.S.R. are put out of action, the fewness of the railroads in most cases will render the deflection of traffic impossible."*

One cannot doubt that if Stalin chose to wait no longer and decided to open an attack on the west, the Atlantic Powers' first counterstroke would be an air attack not only on the Soviet forces massing for the attack but also on the railways on which their reinforcement and supply would be dependent. Very early air action was foreshadowed in the event of a Russian aggression in General Eisenhower's report of 2nd April, 1952, to the chairman of the North Atlantic Treaty Organization. For ground defence, he said, fifty divisions would have to be provided, half of them being reserves available within three to thirty days. It was air power, he added, that was the dominant force in war today. "Our goal is to create air strength capable of answering immediately the onslaught of an aggressor and covering, at the same time, the mobilization of reserve forces. Since we cannot predict when an attack will be launched, air forces must be operationally ready at all times to rise to the defence of Western Europe." The scheduled European air arm of the North Atlantic Treaty Organization would amount to 4,000 operational machines by the end of 1952, but far more would ultimately be required, he said.

ATLANTIC AIR POWER

The Atlantic Powers will provide in due proportions the tactical air forces that will be in action at once if Russia strikes. General Norstad, Commander-in-Chief, Allied Air Forces, Central Europe, announced on 20th April, 1952, that two tactical air forces had been established, the Second and the Fourth, the former being composed of British, Dutch and Belgian units and the latter of United States, French and Canadian formations. They should be able to give the Russian fighters a very stiff fight for mastery of the air in the theatre of war. The Royal Air Force, one cannot doubt, will be in the forefront of the battle. A good deal has been said about this country's failure to keep up the strength of the Air Force since 1945. Much of the criticism has been misconceived. What happened after the First World War has apparently been forgotten. Then, our Air Force was allowed to run down to a far lower level than it was after the later war. On 14th March, 1924, Sir Samuel Hoare, the Secretary of State for Air, stated in the House of Commons that our first-line was then only 371 machines. After the second war, Mr. Ward, Under-Secretary of State for Air, stated in the House on 18th March, 1952, it was at one stage not much more than 1,000 aircraft. That was a very respectable figure. Conditions were different thirty years ago, but at least we allowed for the change to the extent that we retained nearly three times as large a first-line strength as we had done after the earlier war.

The strategic air offensive will fall necessarily in the main to the Americans. They alone have the heavy bombers that could make it massive and overwhelming. We could help with our Lincolns, Washingtons (B-29's) and Canberras, but these are only medium bombers by American reckoning, and

* Major-General J. F. C. Fuller, *Russia Is Not Invincible*, 1951, p. 13.

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it will be some years before the Vickers Valiant is in the line. Meanwhile the Americans have their B-36 and B-47, and before very long they will have the mighty B-52 and the B-60. The Russians have nothing to compare to them. Perhaps Stalin's hesitation is due in part to his knowledge, through his secret service, of what is happening in certain places in the United States, places of which the Russian people—and most of our own, for that matter—have never heard, but places where unimaginable tribulation is being prefabricated for Russia if she should be so unwise as to go to war. They are the places where the giant bombers are passing endlessly along the assembly lines: the huge plants around Seattle and Los Angeles, those at Fort Worth in Texas, at Wichita in Kansas, at Tulsa in Oklahoma, at Marietta in Georgia. It is here that is being forged the most tremendous instrument of strategic air power that the world has ever seen.

RUSSIA'S OIL AND OTHER SUPPLIES

Then, there is oil. "Oil," says Mr. John Fischer, "may well be Russia's economic Achilles' heel. Total output in the U.S.S.R. and satellites comes to roughly 900,000 barrels a day, including synthetics, or only about 14 per cent. of America's production." The Red Air Force, he says, is so chronically starved for fuel that the pilots get relatively little flight training.* The effect of a serious shortage would also have a disastrous effect upon the Russian people's food supplies. Agriculture in the Soviet Union is very highly mechanized and a plentiful supply of oil is needed to keep moving the tens of thousands of tractors which are at work on the farms. Something approaching famine conditions might be created if, say, the railways, pipelines and refineries in the Baku—Batoum region were massively bombed. They are far more exposed to attack than Magnitogorsk or the other new metallurgical centres. Stalin, as a Georgian, cannot but be aware of the danger to them, and it must make him think. He must know that the Western Powers have the means of doing immeasurable damage to the most important of his oil sources, the Caucasus. Here, alone, is a sufficient reason for his hesitation to embark on the perilous adventure of a new world war.

There are other commodities, too, of which Russia is short. She has to import rubber, cotton, wool, tin, tungsten and molybdenum, and her production of coal and steel, as well as of oil, is far less than that of the United States; uranium is also thought to be scarce in the Soviet Union.† In heavy industry, too, North America and Western Europe have a great preponderance of capacity. Their war potential as a whole is far greater than that of Russia and her satellites. In a long war this would mean inevitably the defeat of the east. That probability cannot but have weight in the counsels of the Kremlin.

A POSSIBLE EXPLANATION

In the question, Why does Stalin wait? there is the veiled implication that he intends to make war but hesitates to begin. One can almost see a secretary going to him to jog his memory: "About that war, sir?" It may be so, but again it may not. It is impossible to be sure about what is in his mind and it would be folly to be dogmatic. It is unwise at the same time to ignore the possibility that Russia does not intend full-scale war at all and that all her elaborate preparations for it are only the backcloth for a drama in which others would be the players. They would be her dupes, her stooges, the indoctrinated peoples in

* John Fischer, *America's Master Plan*, 1951, p. 195.
† *The Economist*, 29th September, 1951, p. 752.

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various lands who are foolish enough to rush in where she herself fears to tread. Wars like those in Korea and Indo-China, terrorism and banditry of the Malayan pattern, suit her book better than a global war would do. They keep the capitalist Powers preoccupied, force them to expend blood and treasure, and increase their difficulties in creating the armed strength which is being massed, according to the Russian thesis, for aggression in the west.

There are many Frenchmen who believe that if a third world war does come, it will be one begun by the same enemy who began the first and the second. They see a greater danger in a remilitarized Germany than in the Soviet armaments. They may be right and their fears should not be dismissed as wholly groundless. The German people as a whole will not rest content for ever with a situation in which their western and eastern provinces are separated, and some of them would go further and endorse the view of Professor Hallstein that a united Europe must extend to the Urals. There is obvious danger in the rearmament of a Germany that is irredentist and dissatisfied, but, as a former German general has pointed out, there is the safeguard for the present that her people's deepest desire is to be spared the sufferings of another war, and as long as the German units remain integrated in a supra-national army there is little likelihood of their making a lone attempt to recover Silesia and the other lost lands.* For the time, at any rate, we need the Germans on our side. They are good at the one thing which will be the most important thing in the world if Stalin should decide after all to wait no longer. It is the killing of Russians. They did a lot of that in 1941-45. And it would be folly to conclude that it may not have to be done again. There is no certainty that Stalin does not mean business, and ugly business. The way to prevent that from happening is for the free nations to continue to build up their defences. The atom bomb alone may not deter him if he is set upon going to war; he may share the view of those who think that it has already gone the way of gas in war. The stronger and readier we are in *all* arms the better is the chance that he will continue to wait and will not strike. The restoration of a balance of power in Europe will perhaps lead to a peace that may be an uneasy one but will at all events be better than another great war. That would only produce the confusion, suffering and chaos in which Communism breeds and thrives.

* See "The Chimera of German Neutrality," by Erich Dethleffsen, former General in the German Army, in *Foreign Affairs*, April, 1952, p. 372.

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The latest RF-84F swept-wing Thunderjet, with wing-root air intakes, displayed with various types of the loads it can carry, in addition to guns and P.R. cameras

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PROTOTYPE AIR POWER

By John W. R. Taylor

WHEN he presented the 1952-53 Air Estimates to the House of Commons on 18th March, the Under Secretary of State for Air painted a gloomy picture of the obsolescence of present Royal Air Force equipment which, we are told, surprised and shocked both Hon. Members and the Press. It should not have done so, as the Air Ministry has made little attempt to camouflage its post-war policy of making do with fighters and bombers designed in 1941-44, until a new generation of jet super-fighters and atom-bombers are available.

This policy represents a gamble on peace, and will remain a gamble for two more years, until aircraft like the Hunter, Swift and Valiant enter service with Fighter and Bomber Commands. When that time comes, the Royal Air Force will be superior in speed, striking power and operational efficiency—though not in numbers—to any other air force in the world. At the moment it has relinquished that leadership to both the United States and Russia. Those are the facts. They would not prevent Fighter Command decimating with its present Meteors and Vampires any force attacking this country. Nor would they prevent Bomber and Coastal Commands striking back hard at the sources of enemy attack. The next two years will be critical ones, especially as the other Western Europe air forces are no better equipped than our own.

The cold, hard truth is that for seven years there have been wonderful crops of military aircraft prototypes in Britain, France, Holland and Italy, but little production, except of obsolescent types. British companies could not produce their latest aircraft as they received no orders. Continental firms have given the impression that they are not interested in production; but this is partly the result of official policy of "why should we build Vampires when we can get Thunderjets for nothing from America?"

Now the time has come to stop talking of many things, and to start building up a strong, integrated Western Europe air force of sufficient quality and quantity to deter aggression. It is something that can be done only by integrating aircraft industries as well as air forces; as it is of little use mass-producing Hunters and Swifts in England, Mysteres in France, Meteor night-fighters in Holland and Venoms in Italy if nobody is going to build heavy bombers, trainers, transports, helicopters, and anti-submarine aircraft.

Nor should we rely on the United States to meet requirements of any particular type of aircraft. There is no doubt of the quality of many of the latest European prototypes and the danger of over-standardization was demonstrated time after time during World War II.

Bearing in mind these things, plus the inadvisability of, for example, building all our night fighters in factories that might be overrun quickly by any aggressor from Eastern Europe, let us take a quick look at some of the more promising military aircraft now flying in Western Europe.

SINGLE-SEAT FIGHTERS

Spearhead of any air force must be its day-fighter squadrons, for these are the aircraft essential to blunt an enemy attack until a counter-attack can be mounted. In ten years' time, the job might be taken over by guided missiles, or radar-controlled, ramp-launched piloted delta interceptors like the projected American Convair XF-102. But, at the moment and until then, it would be hard

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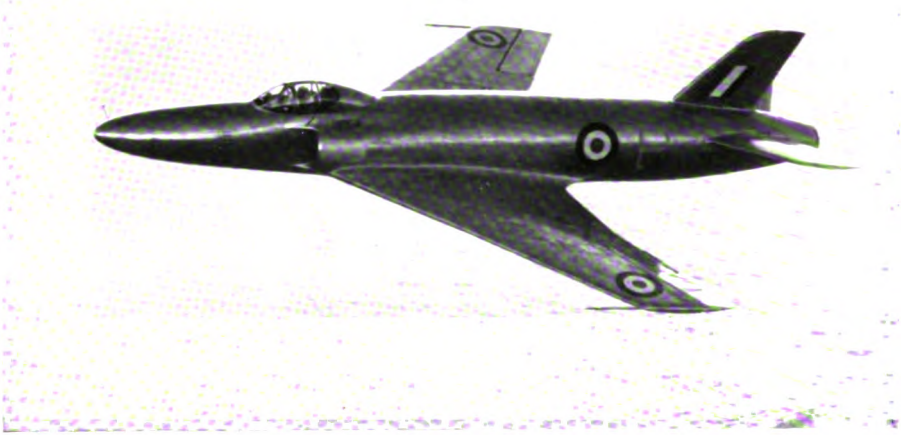
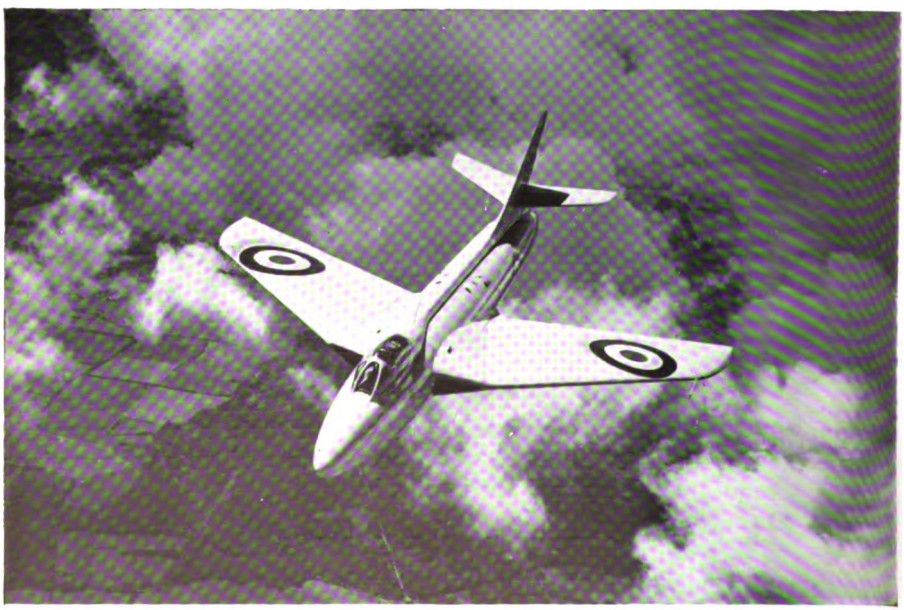


The British Supermarine Swift



[*Copyright Hawker Aircraft Ltd.*

The Hawker Hunter

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to find better interceptors than the British Supermarine Swift and Hawker Hunter and the French Dassault Mystere, all of which have been ordered into production.

Few details of their performance or armament have been released; but during its demonstration flights at last year's S.B.A.C. Display at Farnborough the Hunter flew at speeds higher than the present world record of 670.9 m.p.h. The Swift, powered with the same engine—a Rolls-Royce Avon of 7,000-lb. thrust—can be little slower; and the French claim that the Mystere, which has a 5,000-lb. thrust Hispano-built Rolls-Royce Nene turbojet, has exceeded its design speed of 650 m.p.h. It can, presumably, be developed to take the more powerful Hispano-built Tay, or the new S.N.E.C.M.A. Atar turbojet of some 6,500-lb. thrust, just as the Hunter could probably use an 8,300-lb. Sapphire, built by a sister company of the Hawker Siddeley Group.

The Mystere has the now standard armament of four 20-mm. cannon, plus rockets; but it has been stated officially that the Swift and Hunter have heavier armament than this. Persistent rumours credit each with a number of 30-mm. cannon, developed from the highly successful German Mark 108 gun. This seems both logical and desirable, as the speed of present-day air combat precludes the possibility of hitting an enemy with a long burst of fire, so that the heavier one can hit with a few shells the better. It is significant that armament of the Russian MIG-15 includes a 30-mm. cannon, and although U.S.A.F. reports claim that its slow rate-of-fire makes it less effective than a battery of American "point-fives," this disadvantage would be offset by radar gunsights of the type used so successfully by U.S. Sabres and Thunderjets in Korea.

Nevertheless, all types of cannon must eventually be superseded as fighter armament by homing air-to-air guided rockets, and it is good to know that Britain is the forefront of research in such weapons of the future.

ALL-WEATHER FIGHTERS

Backing up the single-seaters, we must have a powerful force of fast, long-range two-seat fighters able to search out and kill enemy raiders by day and night in all weathers. Present equipment of two-seat Meteors and Vampires and the forthcoming Venoms are useful stop-gaps; and the later, faster, two-seat radar-equipped Dassault Mystere de Nuit may be even better, especially if it can be produced quickly, side by side with single-seat Mysteres. But the requirements of long range, high rate-of-climb, comprehensive radar and heavy fire-power demand a bigger, more powerful aircraft specially designed for the job.

The only Western Europe fighters which appear to meet these requirements in full are the new swept-wing de Havilland 110 and the Gloster GA-5 Delta. They are similar in general specification—two-seaters, each powered by two of the most powerful turbojets in production, with extensive radar and armament of, probably, 30-mm. guns—but aerodynamically it would be difficult to produce two more dissimilar

[*Photo: Photavia.*

The two-seater Dassault Mystere de Nuit

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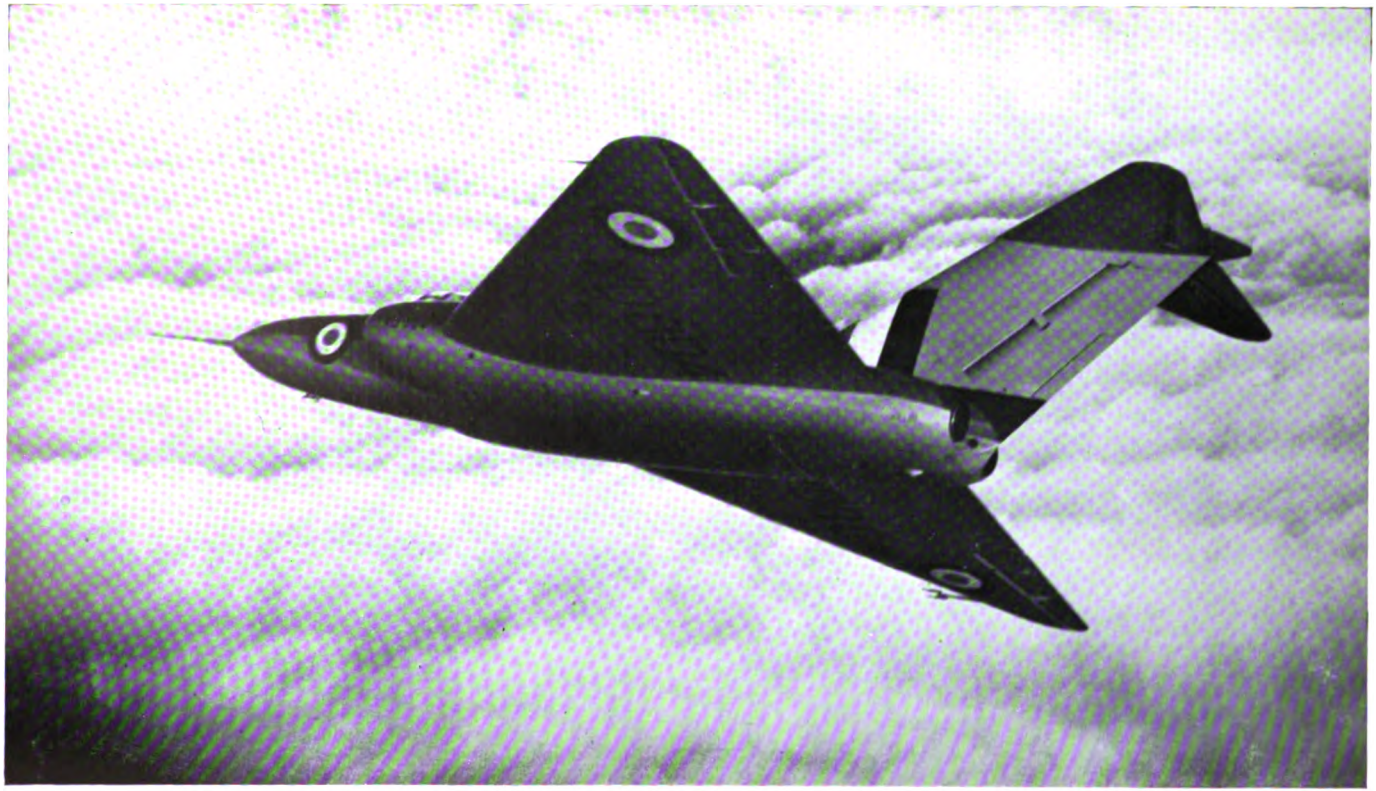

[*Photo: Russell Adams.*

THE GLOSTER GA-5 DELTA

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designs. D.H.110 follows the well-tried Vampire-Venom twin-boomed formula, but it is much larger than its predecessors, with swept wings and tail, two Avon engines and a totally enclosed cockpit for its radar operator beside the offset pilot's canopy.

The GA-5 is the first operational delta and the first to have two engines, in this case Sapphires. Its crew of two sit in tandem, followed by an outsize fin, topped by a tailplane which is virtually a small-scale replica of the wing, giving the effect almost of a short-span delta cantilever biplane. No details of its all-important rate-of-climb are available, but it is worth recalling that a Gloster Meteor equipped experimentally with two similar Sapphire turbojets made a record climb to 39,000 ft. in three minutes last year.

It appears to be a most formidable warplane and, if it handles as well as we are led to believe, may well be No. 6 on the Government list of British "super-priority" aircraft on completion of its evaluation trials.

FIGHTER-BOMBERS

Standard fighter-bombers of Western Europe air forces at the moment are the Vampire FB.5 and Republic F-84E Thunderjet. Both carry an assortment of bombs and rockets, and the U.S.A.F. have now adapted the Thunderjet to carry "baby atom-bombs," making it one of the most powerful tactical weapons in the world. Nor is it by any means obsolescent, as Republic have developed a new F-84F version with swept-back wings, American-built Armstrong Siddeley Sapphire engine and special radar in its nose to improve operational efficiency.

There are few indications of a successor to these types. The Venom, although classed as a fighter-bomber, was designed essentially for *high-altitude* fighting and the French twin-Nene Grognard would seem to offer few advantages over the Canberra. It seems likely, therefore, that the Thunderjet will be used almost exclusively—and effectively—for some years and, after that, the fighter-bomber may be superseded by light tactical bombers of the Canberra class and guided weapons, unless the Hunter or Swift sprout bombs and rockets, as seem to be the fate of most modern high-speed fighters.

LIGHT BOMBERS

Here the choice has been made, and we are committed to the twin-jet Canberra for several years. In Britain, the Canberra project involves English Electric, Avro, Short and Handley Page, while no fewer than nine factories will eventually be turning out Avon engines for this and other aircraft. Already we have versions of the Canberra designed for low and high-altitude bombing, target marking, photo-reconnaissance and training; and the American Martin Company is building for the U.S.A.F. a night intruder version, carrying guns as well as bombs.

Nor is the Canberra merely in the prototype stage, for it is already in service with Nos. 101 and 617 squadrons of Bomber Command and will soon re-equip one or more P.R. units. It will become almost certainly the standard tactical support bomber of General Ridgway's European Army, side-by-side in two years' time with squadrons of Douglas B-66's, which are being produced in America especially for N.A.T.O. countries.

Beyond these aircraft are the pilotless bombers—super V1's, with greater power, speed, range and accuracy than their German forbears, and interchangeable atomic or high explosive warheads. First to be announced is the American

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[Photo: Glenn L. Martin, Company.

The Martin B-61 Matador already in service with the U.S.A.F.

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The Vickers Valiant bomber with four Rolls-Royce Avon turbojet engines

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Martin B-61 Matador, already in service with the U.S.A.F. It is unlikely that British designers are lagging behind in this vital field.

MEDIUM AND HEAVY BOMBERS

The few squadrons of obsolete Lincolns, Halifaxes and B-29 Washingtons now in service with the R.A.F. and *Armee de L'Air* can hardly be regarded as a serious striking force. Western Europe air forces will, therefore, be without a "Sunday punch" until new British heavy jet-powered atom-bombers are in service. Even then, we have the admission of the Chief of the Air Staff that, numerically, the force will be small, as the initial cost of each bomber is higher than that of a pre-war naval destroyer. Much of this cost is undoubtedly accounted for by radar equipment needed to bomb accurately through cloud from heights over 50,000 feet, for the Americans have already announced the cost of their one-ton Type K.1 optical and radar bomb-sight as about £93,000.

So far we have seen two of the new heavies—the Short S.A.4 which has not been ordered into production, and the Vickers Valiant which has. They are multi-seaters, each powered by four Avons and apparently unarmed, relying chiefly on a combination of speed and great operating height to elude enemy defences. The Valiant is the finest bomber in its class anywhere in the world, able to fly faster, farther, higher and with a bigger bomb load than the versatile Canberra. It will probably become even better as more powerful engines, weapons and design ideas are developed, as its design offers plenty of "stretch." Its beautifully clean lines, with engines buried in the roots of its sweptback wings, are a model of aerodynamic efficiency; but British designers never put all their money on orthodoxy, however promising, and American reports claim significantly that the Avro 707A and Handley Page H.P.88 research aircraft were built as "flying scale models" of new big bombers with delta and crescent-shaped wings respectively. Certainly the pure delta configuration, without tail-plane, appears to offer many advantages where heavy payloads are more important than a high degree of manœuvrability, as would be the case with a bomber.

MARITIME PATROL AIRCRAFT

There is no disputing the vital importance of over-water patrol bombers. Germany entered World War II with 57 operational U-boats and built up to a peak force of about 400, which were nearly sufficient to force Britain to her knees. Russia is believed to have more than 300 U-boats available *now*, many of them of the most modern German design. To meet the threat, Britain has a few ageing but invaluable Sunderland flying boats and a comparatively small number of well-equipped, long-range Shackleton land-based bombers. France has 54 Lancasters, based chiefly in North Africa, and a few Nord 1402 Noroit twin-engined amphibians. In addition, Britain is receiving Lockheed Neptunes from America for inshore patrol.

Clearly, the Shackleton must remain our mainstay for some years, and, although it is basically a redesign of the Lincoln bomber with four Rolls-Royce Griffon engines, it should prove adequate for the task. It carries extensive radar search equipment, can accommodate a formidable load of attack weapons—probably including our new homing torpedo—in its large bomb-bay; and provides a reasonable degree of comfort for its crew during prolonged patrols. But there is a crying need for a new propeller-turbine powered high-performance flying boat, an aircraft which exists now only on paper. Such a machine would form the perfect team-mate for the Royal Navy's new Gannet carrier-based

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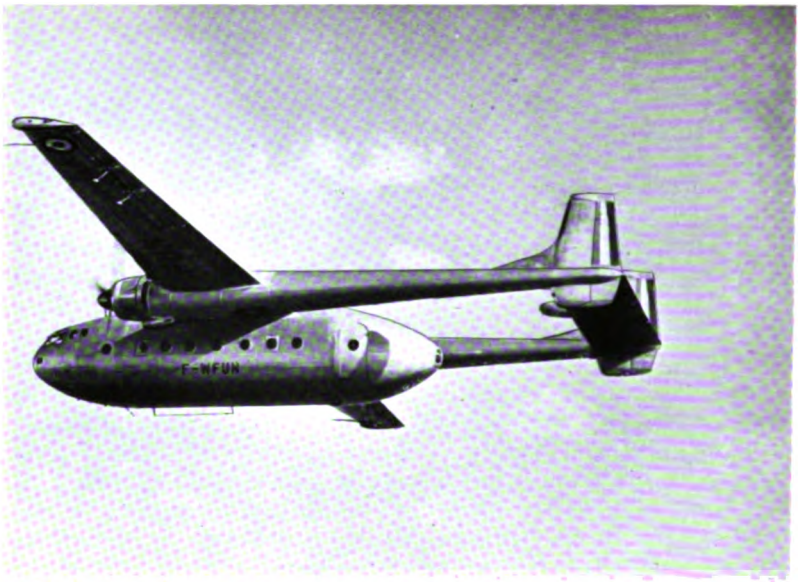

[S.N.C.A.N. Service Photo.

The French Nord 2501 Noratlas Freighter

[U.S. Official Photo.

The single-engined Sikorsky S-55

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anti-submarine aircraft, which is in production but outside the scope of this article, which is concerned solely with land-based warplanes.

TRANSPORT AIRCRAFT

The good old days when one general purpose air transport was sufficient for all military requirements are long past. Today, if an air force and army are to achieve the standard of mobility essential to save the peace or win a war, they need a selection of about six totally different types of transport aircraft, all specially designed to do well one particular job.

First essential is a high-speed transport able to accompany a bomber group to a new base overseas, carrying all aircrew and equipment needed to get the group into action with all possible speed. The Americans have made a start in this respect with their teams of B-50 bombers and C-97 transports, which have comparable flying performance and interchangeable wings, engines, tail units, undercarriages and other components. The ideal for our future Western Europe air force would thus be a transport version of the Valiant. But bearing in mind production facilities, a military transport version of the Avon-powered Comet series II would also seem to fill the bill very nicely. We are assured that a new jet transport *is* under development for the Royal Air Force, also a replacement for the Valetta medium transport; but no details are yet available. There are at the moment no European military transports to meet these requirements.

Equally important are air freighters, of comparatively modest performance but able to carry heavy loads of bulky equipment, up to and including big guns and light tanks. There are already two admirable Western Europe prototypes in this category—the British Blackburn Universal Freighter and the French Nord 2501 Noratlas. They are sturdy machines, with a minimum of "frills," quick-loading facilities and, most important, rear-loading doors which can be removed to permit dropping of supplies by parachute during flight. The advantages of this have been shown in Korea; while jeeps, guns and even a 9½-ton bulldozer have been delivered successfully in this manner in America.

The Universal Freighter Mark 2, for which only a prototype order has so far been placed, is a massive aircraft with an enormous square-section cargo-hold able to accommodate 20 short tons of freight. Its combination of four 2,500 h.p. Bristol Centaurus engines, 2,916 square feet wing area and fixed bogie undercarriage will enable it to operate out of small, rough fields that the now standard Hastings and even the excellent Fairchild Packet transport could not use. Chief drawbacks are that it would be costly both financially and in factory space and manpower required to build it. But it is an aircraft that we can hardly afford to be without. The somewhat comparable French Breguet Deux Ponts is far more complex in construction and, although faster, does not share the Universal's take-off performance or carrying capacity.

As we, apparently, are not to be spared American Fairchild Packets, we could do far worse than standardize on the promising Nord 2501 Noratlas twin-engined medium freighter, some 177 of which are being built for the French Air Force. Its layout is identical with that of the American aircraft, with big loading doors at the rear of its pod-like fuselage, between twin tail booms. It is somewhat smaller, with two 2,040 Bristol Hercules engines compared with the Packet's two 3,500 h.p. Wasp Majors; but its payload of 10,281 lb. for 930 miles is nearly as great.

Ideally, a small assault transport—a sort of powered glider able to land almost anywhere and get out again under its own power—should come next. But we can probably afford to by-pass this in favour of a large helicopter.

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The New Fokker S.14 Jet Conversion Trainer

[*Photo: Percival Aircraft Ltd.*

The twin-engined Percival Prince

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The biggest ones at present available are the twin-rotor elongated Bristol 173, powered by two 550 h.p. Leonides engines, and the single-rotor, single-engined Sikorsky S-55, which is to be built in England by Westland and in France by S.N.C.A.S.E. Both are 10-seaters and S-55's have already achieved outstanding successes in Korea, moving whole units of American Marines and their equipment quickly to the front line, often in otherwise inaccessible country. But something bigger will be needed eventually, and the best answer seems to be the projected Fairey Rotodyne, a 40-seater powered by Mamba propeller-turbines, which drive a jet-rotor and give it a cruising speed twice as great as that of present-day helicopters.

TRAINERS

Standard formula for R.A.F. training at present involves use of four categories of aircraft: basic (de Havilland Chipmunk and Percival Provost); advanced (Boulton Paul Balliol); jet conversion (Meteor and Vampire); general aircrew (Vickers Varsity and Handley Page Marathon). Despite the attractions of, for example, the pretty little Piaggio P.148 and the sturdy Fokker S.11, it would seem sensible to standardize on the Chipmunk for *ad initio* flying training. It inherits all the delightful qualities of its forebear, the well-loved Tiger Moth, and is in full production and service with some fourteen world-wide air forces. The R.A.F. will standardize on the new Provost side-by-side two-seater, but production will probably be insufficient to meet also overseas requirements.

The R.A.F.'s Balliol is proving an ideal advanced flying trainer; but there is strong justification for adopting the new Fokker S.14 as a standard jet conversion trainer for Western Europe rather than our Vampire and Meteor. Chief disadvantage is that it is not in production, whereas the British machines are. On the other hand, it was designed as a trainer from the start and so possesses none of the inherent operational restrictions of a fighter, and it could be built in Holland or France where factory space is at less of a premium than in Britain. Its side-by-side seating, endurance of nearly three hours at 400 m.p.h., comprehensive equipment, fine handling qualities, plus use of a well-proven Derwent engine, make it a most attractive proposition.

As far as the aircrew trainer is concerned, Vickers' commitments for producing Valiants and Viscounts have made Varsity production problematical, and the four-engined Marathon seems a complex alternative, adopted because aircraft of this type are immediately available. A more practical solution would be to follow the example of the Royal Navy, who have adopted the twin-engined Percival Prince for the task. It uses the same, reliable Alvis Leonides engines as the Provost basic trainer, is roomy, sturdy, and already in production for the R.A.F. as the Pembroke communications aircraft. Its wider application seems logically only a matter of time.

CONCLUSION

Other aircraft too are needed to convert Western Europe air power from a promising prototype into a potent weapon for peace—air observation posts, light communications aircraft, target tugs and even a flying-boat trainer like the splendid little twin-engined Piaggio P.136, to enable our maritime pilots to keep their hands in until the inevitable return of big flying boats to front-line service.

All these *must* be provided, and provided soon. We have in Western Europe the design genius, the engineering skill and craftsmanship, the factory space and the materials for the task. What we must rediscover is the will to convert these gifts into the means for our survival.

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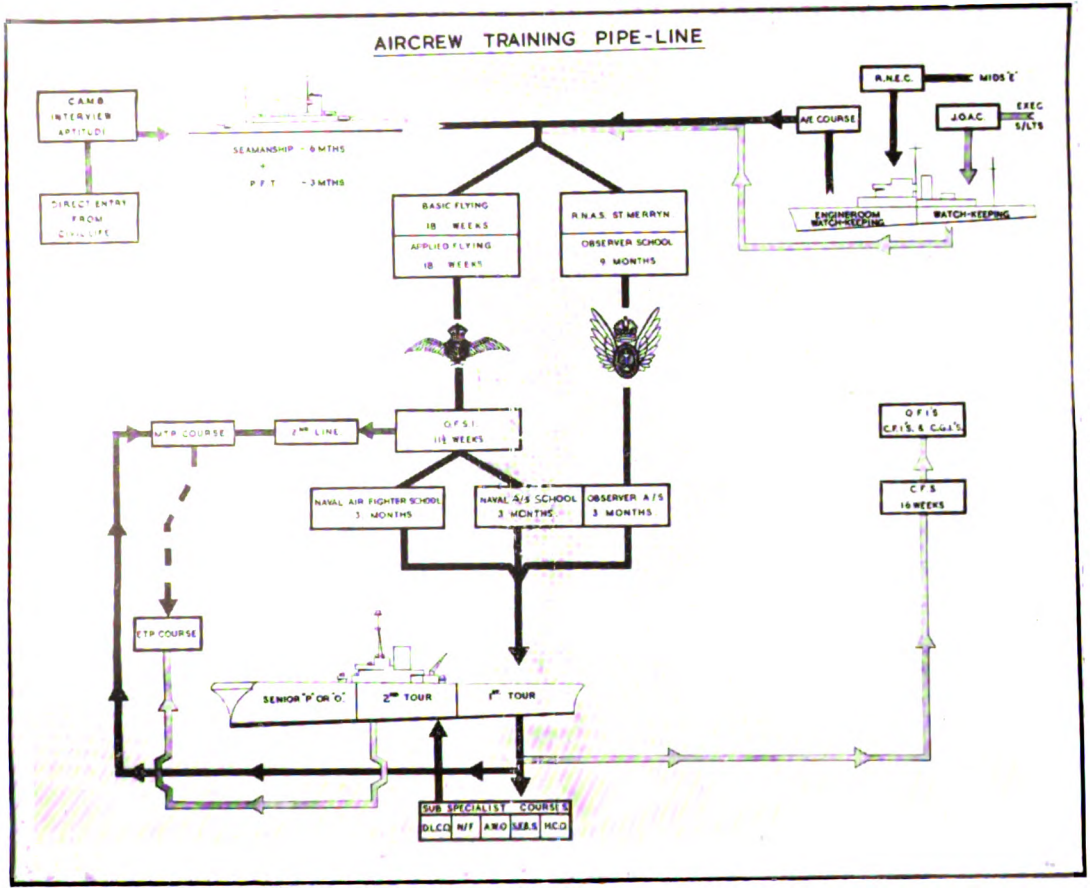

EXPLANATION OF ABBREVIATIONS

C.A.M.B. = Central Air Medical Board.
M.T.P. = Maintenance Test Pilot.
D.L.C.O. = Deck Landing Control Officer.
S.E. & S. = Safety Equipment and Survival.
J.O.A.C. = Junior Officers' Air Course.
E.T.P. = Empire Test Pilot.
N/F = Night Flying.
H.C.O. = Hangar Control Officer.

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TRAINING NAVAL PILOTS AND OBSERVERS

By Rear-Admiral H. E. Horan, C.B., D.S.C.

NAVAL pilots and observers are all volunteers and come from four sources:

(*a*) Regular Service officers.

(*b*) Special entries for short-service commissions.

(*c*) Regular Service ratings who get short service commissions in exactly the same way as the special entries.

(*d*) National Service men.

The Regular Service officers are those who have passed through the training colleges at Dartmouth (Executive) and at Keyham (Engineer). Both these categories can volunteer to specialize in Naval Aviation after they have been at sea as subordinate officers, done their sub-lieutenant's courses and got their watching keeping certificates. The latter means that they are "capable of taking charge of a watch at sea." This is the same routine for any other form of specialization such as gunnery, navigation, etc., and thus they are in exactly the same position as any other specialist.

The special entries for short-service commissions come straight from the "beach" and are entered for eight years' commissioned service. Towards the end of this time 20 per cent. will be given permanent commissions and the remainder go back to civilian life with a gratuity and are on the reserve list.

Before being called up for national service many men volunteer to do it in Naval Aviation. During their period of two years' service they can at any time elect to take a short-service commission. Those who do not are required to complete a period with the reserves.

It is thus clear that there is a wide field of selection and as this depends on very careful tests it stands to reason that only outstanding candidates are taken. This ensures efficiency of a very high order and is one of the reasons that Naval Aviation is of the same standards as the other specialist branches of the Royal Navy.

BASIC TRAINING

The basic training of all pilots has up to date been carried out by the Royal Air Force at their training centre at Syerston (Nottinghamshire), which ensured that the training of both the naval and air force pilots is carried out on exactly the same lines. Recently, in addition to the naval pilots trained at Syerston, a certain number have been sent to the United States for training in the U.S. Navy.

As far as the special entry and short-service personnel are concerned, from the naval point of view it seems a pity that they have to spend nine months of their service completely divorced from a naval atmosphere. In the case of the special entries they have only had six months' experience of the sea in the Training Squadron and the National Service men only eight weeks. In both cases this is too short a period for anyone to get his "sea legs." Even the three months spent in pre-flight training at the Naval Air Station at Donibristle (H.M.S. *Merlin*) is no substitute for being at sea.

Perhaps in the future it will be possible for the basic training that is done in this country of the above-mentioned personnel to be carried out somewhere near a naval port where they will have the opportunity to rub shoulders with the

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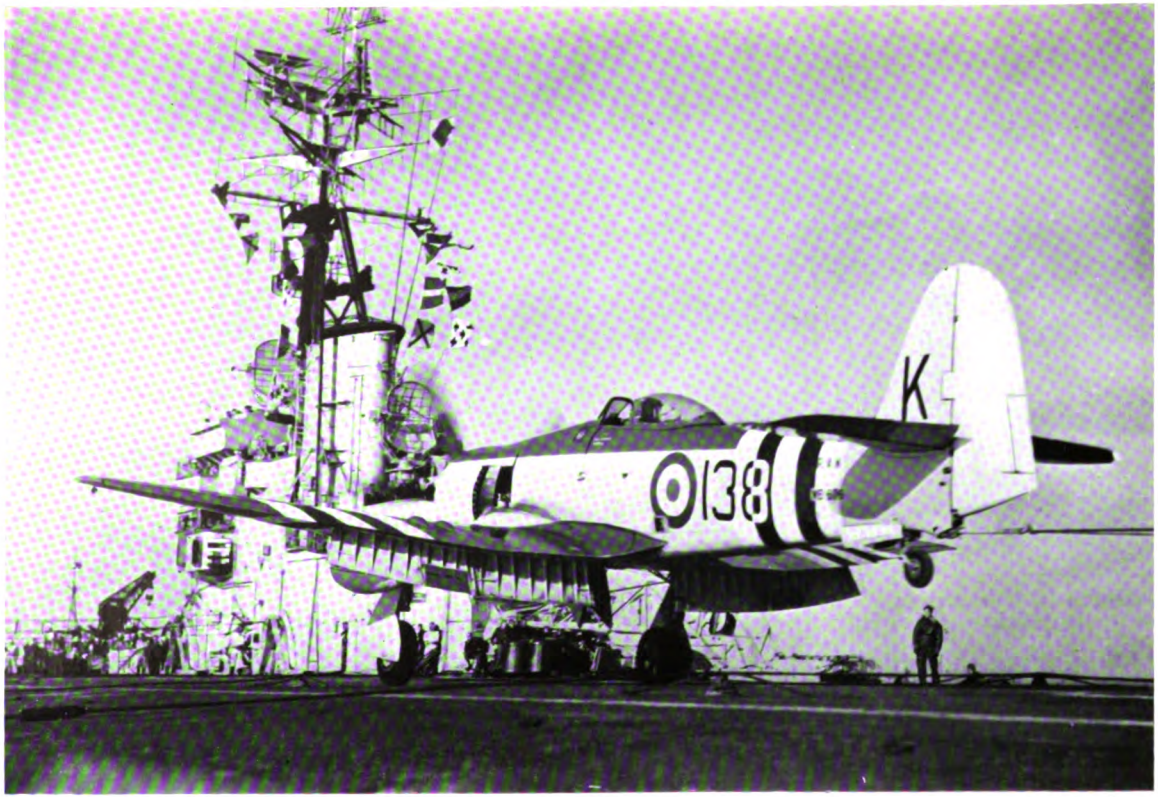

[*Admiralty Photo.*

H.M.A.S. SYDNEY, 19th OCTOBER, 1951

A Sea Fury aircraft returns from a sortie over the mainland of Korea. The arrester wire is seen attached to the tail

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DECK LANDING ON H.M.S. ILLUSTRIOUS
A Blackburn Y.A.5 coming in to land during trials. Note "Bats" at work

remainder of the Service and thus become an integral part of it. Portsmouth seems the ideal locality because it is here that all the important schools for officers are situated and where facilities for short courses and demonstrations can be arranged whenever required.

The basic training course at Syerston lasts nine months and at the end of the time the successful pupils get their "wings" and are ready for operational flying training.

NAVAL OPERATIONAL FLYING SCHOOLS

On completion of the course at Syerston pilots go back to the Navy and their next port of call is the Naval Operational Flying School (Part I) at Lossiemouth (H.M.S. *Fulmar*). Here they spend three months learning to fly the types of aircraft in use in the Navy, both by day and night. They are introduced to the intricacies of formation flying and get their first grounding in navigation.

It is here that the pilots are divided into fighter and anti-submarine categories and each flies the type of aircraft for which he has been chosen.

On leaving H.M.S. *Fulmar* the fighter pilots go to the Naval Air Station at Culdrose (H.M.S. *Seahawk*) which for them is Operational Flying School (Part II). Here they do a course of three months' intensive training in air combat, ground attack and deck landing. The latter is carried out in one of the training carriers—H.M.S. *Illustrious* or H.M.S. *Triumph*—and is certainly the most exacting and exciting part of the course. It stands to reason that it is part of the job of any naval pilot, whether fighter or anti-submarine, to take off from and land on a carrier at sea. This must be done by day and by night in any weather and, further, the pilot must learn to take his orders for landing on from the Deck Landing Control Officer, commonly called the "Batsman." The reason for this name is because he transmits his signals by what look like ping-pong bats.

Deck landing is not an easy evolution and calls for both skill and nerve of a

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high order. With an ordinary land airfield there is anything up to a mile or more of nice level tarmac to land on. With a carrier, pitching and rolling in a seaway, there is something in the region of five hundred feet of flight deck and, of course, the technique of landing is entirely different. To bring the aircraft up in the required distance she must be brought in so that the "arrester hook" engages in one of the "arrester wires" stretched at intervals across the deck. The deceleration produced by this arrangement must be felt to be believed!

So much for the fighter pilots. The anti-submarine pilot leaves H.M.S. *Fulmar* and goes to Eglington (H.M.S. *Gannet*), which to him is Operational Flying School (Part II). The course here, like that of the fighter pilot, lasts three months and deals with the intricacies of all forms of anti-submarine warfare. When one comes to think of the role of the Navy in any future war it is at once apparent how vital this period of training is not only to the pilots but to Naval Aviation as a whole.

Close to Eglington at Londonderry is the School of Anti-Submarine Warfare (H.M.S. *Sea Eagle*). Exercises with the submarines and surface ships attached to this establishment are the order of the day. In this way the pilots get practical sea-going experience in the subjects taught in H.M.S. *Gannet*. This latter establishment is where all the new ideas in anti-submarine warfare are tested and thus a pilot gets the very latest technique in the subject.

The emphasis at both these schools is laid on night and bad weather flying. It stands to reason that an enemy submarine must be attacked at any time of the day or night and *in any weather*. In a future war it might well be that the major part of anti-submarine warfare would be carried out from small carriers at night in the open sea. Consequently carrier work at any time of the day or night in any weather takes first place in the syllabus of instruction.

NAVAL OBSERVERS

Anti-submarine warfare brings us to the part played by that very important person—the Naval Observer. This officer does not learn to fly an aircraft. There is not time for this. Observers are drawn from the same sources as pilots. The regular officers go straight to the Naval Air Station at St. Merryn (H.M.S. *Vulture*), which is the Observers' School. The special entries and the National Service men do the same on leaving the Training Squadron.

In H.M.S. *Vulture* the would-be observer is taught how to navigate in the air, a very different problem from that encountered on the surface of the sea. He also learns how to become an expert on reconnaissance, communications and recognizing ships at sea in any light. In this way he becomes the "eyes" of the Fleet. It is on him that the Flag or Senior Officer of any force must rely for accurate information of the enemy and he is responsible that this information is transmitted accurately and quickly.

On leaving H.M.S. *Vulture* the observer goes for three months to H.M.S. *Gannet*, where, after being taught the basis of anti-submarine tactics, he meets the pilot with whom he will have to work and together they complete their training as a "team." The importance of this teamwork cannot be overstressed. As an example the pilot will have to rely on his observer to get him back to a carrier, which is a very small spot on the ocean, after a long flight in which perhaps nothing but a waste of water is sighted.

In war, and even in peace-time exercises, this carrier is completely darkened at night, which of course adds to the difficulty. That it is done so often and with such regularity speaks well for the training and skill of all concerned.

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Furthermore the offensive work of locating and reporting, attacking and destroying any enemy, whether surface or submarine, requires team work of a very high order.

FRONT-LINE SQUADRONS

To sum up, the training of pilots and observers takes up to two years before they go to sea in the Fleet and form part of the complement of an aircraft carrier.

At the end of the courses described pilots and observers are appointed to the Front-Line Squadrons. Here at every opportunity training is continued, but as in the case of the light fleet carriers in Korean waters, operations may be upon the personnel in a matter of hours.

At the end of a four weeks' passage from England to Japan H.M.S. *Theseus* put into Sasebo one morning and the same evening sailed for operations against the enemy in Korea. Such is the mobility of the personnel and aircraft in carriers; in this case it was two complete squadrons that went into action.

It is the usual routine for the personnel of the Front-Line Squadrons to remain embarked for about eighteen months. Then they come ashore again and undergo post-graduate courses during which the pilots may specialize in Deck Landing Control, Air Weapons or as Flying Instructors. The courses for the two former categories are undertaken in the naval establishments, but for flying instructor the Royal Air Force run the course at the Central Flying School at Little Rissington.

This spell ashore usually lasts for about eighteen months, when once again pilots and observers find themselves in a carrier at sea for a similar period.

This routine of alternate shore and sea service for the personnel of Naval Aviation is not hard and fast. Regular officers may find themselves appointed to ships other than carriers at any time where they carry out watch-keeping and other duties. Special entries are encouraged to qualify for full executive duties and become eligible for command of sea-going ships like the regular officers.

CONCLUSION

This is a very short account which only gives the bare outline of the training of naval pilots and observers in their specialist jobs. In the Navy it is not only flying training that takes up the time of the personnel. They have all joined the University of the Sea. There is nowhere like it for what may be called a liberal education. With an interesting and fascinating job, all those who "go down to the sea in ships" see the world under ideal conditions. They are constantly meeting varied and interesting types of people, they visit places all over the world which they would not do "in the normal course of business." They service in a Service with tradition, a Service which at heart never changes although it develops with the times.

Naval Aviation, although it is the youngest branch, has in its short life built up its own traditions which stand in line with those of the Navy of the past.

These have been set up by pioneer work, training, keenness and team work. These qualities are well brought out in the courses for naval pilots and observers, otherwise the results would not be what they are.

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Generalloytnant Finn Lambrechts, D.F.C. Commander-in-Chief, Royal Norwegian Air Force

[*Photo: Luftvorsvaren.*

General Eisenhower presenting some F84's (Thunderjets) to the Royal Norwegian Air Force at Sola Air Base, September, 1951. Two of the new aircraft can be seen in the background

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KNOW YOUR ALLY

THE ROYAL NORWEGIAN AIR FORCE

Post-War Development and Future Plans

By Colonel Odd Bull, R.N.A.F.

INTRODUCTION

THE Royal Norwegian Air Force (Luftforsvaret) was established as a separate Service during the Second World War by an act of the Norwegian Government in London on 10th November, 1944. The previous Army and Navy Air Corps had, however, been under joint command since the spring of 1941.

During the war the following Norwegian squadrons were established in Great Britain and served under the command of the Royal Air Force:

330 (Coastal Command) Squadron—Sunderland.
331 (Fighter Command) Squadron—Spitfire.
332 (Fighter Command) Squadron—Spitfire.
333 (Coastal Command) Squadron—Catalina and Mosquito.
334 (Coastal Command) Squadron—Mosquito.

Furthermore, a fairly large number of Norwegians served in the Royal Air Force Bomber, Fighter, Coastal, and Transport Commands, in "special service" squadrons and on R.A.F. Headquarters staffs and maintenance units, etc.

No "behind-the-lines" services were organized by the R.N.A.F. All supplies came from R.A.F. sources, but were paid for by the Norwegian Government from the income of our Merchant Marine. R.N.A.F. Headquarters in London provided personnel for the Air Force and was responsible for the elementary training at "Camp Little Norway" in Canada. All other training was arranged in R.A.F. and R.C.A.F. schools at the expense of the Norwegian Government.

THE BUILD-UP SINCE THE WAR

When the war came to an end, the squadrons mentioned above, and other R.N.A.F. personnel in Great Britain and Canada, were transferred to Norway.

The great portion of the personnel who served in the R.N.A.F. during the war chose to leave the Air Force after their return to Norway in order to embark upon or continue a civilian career. This very considerable reduction in trained personnel fortunately came about gradually—over a period of two to three years. There were several reasons why so many of our experienced war-time personnel left the Air Force, but the most important was undoubtedly the poor rates of pay and the scarcity of married quarters in the Air Force.

In 1946 it was decided that the Anti-Aircraft Artillery should be made part of the Air Force and that the new Service should contain the following flying units:

3 Fighter Squadrons.
2 Light Bomber/Reconnaissance Squadrons.
1 Maritime Reconnaissance Squadron.
1 Transport Squadron.

To fill these units, the Air Force bought—at a greatly reduced price—a number of British Spitfires, Mosquitoes and Catalinas (75, 21 and 10 respectively) fully equipped and with a certain backing in spare parts. In addition, the

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Air Force kept the Lockheed Lodestar transport aircraft and the Fairchild PT19 and Harvard training aircraft purchased during the war. Finally some Oxfords and Ansons were bought in Great Britain.

It soon became clear that the Air Force would be unable to man the number of aircraft mentioned above. Consequently a certain reduction in the aircraft strength was unavoidable. But these surplus aircraft stood us in good stead during the first difficult years of reconstruction, eventually, although lack of spare parts created considerable difficulty.

THE ROYAL COMMISSION OF 1946

In 1946 the Government and the "Storting" (Parliament) between them nominated a Royal Commission and charged it with the task of putting forward proposals for the future organization of the Armed Forces. The terms of reference aimed at a somewhat slow build-up of the three Services during, what one thought would be, a long period of peace and international stability.

The Royal Commission handed in its report in 1949. At this time the international situation had deteriorated to a very large extent, necessitating a higher state of preparedness and a greatly accelerated build-up of the Armed Forces.

Specifically the types and numbers of operational Air Force units recommended by the Royal Commission were:

8 Fighter Squadrons.
1 Light Bomber Squadron.
1 Night-fighter Squadron.
2 Light Reconnaissance Squadrons.
1 Transport Squadron.

The Commission furthermore proposed a peace-time establishment of eight unit equipment aircraft per squadron and a 100 per cent. war reserve. The economic limitations of the proposal made it impossible to procure the war reserve aircraft.

The Commission did not propose any major changes in the existing organizational framework of the Air Force.

NORWAY JOINS THE NORTH ATLANTIC UNION

A small country with very limited economic and other resources must organize its armed forces with a view to obtaining a strong concentration around the most important tasks. Even the very modest proposals outlined above did not carry the principle of concentration far enough. It was not sufficient to cut out strategic bomber aircraft and leave this important task to the greater nations.

Not until Norway joined the North Atlantic Treaty Organization and could subscribe to the principle of *collectively* balanced forces, was it really possible for a small country like ours to plan a realistic build-up of our own Air Force, based on a concentration of effort around the most important tasks.

The lessons we had learned since the outbreak of World War II made it quite clear that we could not again return to the policy of neutrality which we had subscribed to before the war. Before we joined the Atlantic Union we had, however, together with Denmark and Sweden, examined the possibilities of a self-contained Scandinavian Defence Alliance. The results of these deliberations were negative. Neither Denmark nor Norway considered such an alliance a satisfactory solution to their security problems. Even within the framework of a North Atlantic Union, it would be economically impossible for Norway to reorganize her Armed Forces within the short time-limit necessitated by her

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N.A.T.O. membership and the increased preparedness. Without the immense arms assistance programme from the United States of America this could not have been accomplished. As a result of this programme the R.N.A.F. will receive aircraft, radio and radar equipment for control and warning, navigational aids, other technical stores and spare parts worth several million pounds. These deliveries have already commenced. The aid and assistance programme also includes facilities for having our Air Force personnel trained at schools in America and in the United States Zone in Germany, or by having U.S.A.F. instructors visit Norway. Thus most of our new Air Force pilots are being trained to meet "wing standards" at flying schools in the United States. Some of our pilots and navigators have also received their training at R.C.A.F. schools in Canada under a Canadian Air Programme.

The logical consequences of the principle of "collectively balanced forces" should also point towards a N.A.T.O. instead of a national basis for inter-service training. This training should not be limited to "combined exercises," but also comprise more elementary forms of training. This should make it possible for Norway to reduce the number of aircraft types and thus concentrate on the more important tasks. To clarify this point of view further I should like to mention a particular case. The Royal Norwegian Navy has no aircraft of its own, and is at the same time dependent on reconnaissance aircraft for realistic training of its personnel. This training ought to take the form of constant joint exercises with maritime aircraft belonging to other N.A.T.O. nations. In this way the R.N.A.F. would be able to do away with *one* type of aircraft and thus increase the number of other types. This can only be done provided the legitimate requirement for maritime aircraft in and around our coastal waters is satisfied in war by aircraft from other N.A.T.O. countries.

In this connection I should like to draw attention to the fact that a squadron of eight reconnaissance aircraft for co-operation with the Navy will require the same personnel establishment as an additional thirty-five to forty tactical fighter/bomber aircraft. The leaving out of reconnaissance aircraft as a separate aircraft type, will furthermore lead to the additional advantage of a less involved technical backing and a simplified training programme.

However, the present Norwegian "Base Rights Policy," which precludes the basing of aircraft belonging to other nations on Norwegian territory in times of peace, will make the proposals outlined above hard to carry out.

ORGANIZATION

The Air Force organization which was temporarily established in 1946 and which in the main has remained unaltered ever since, has much in common with the organizational lay-out of the Norwegian Army. In this organization the Chief of the Air Staff is at the same time the executive Commander-in-Chief of the Air Force. His Headquarters is divided into an Operation Staff and an Administrative Staff. In addition special staff functions are handled by a Technical, a Quartermaster, and a Medical Branch or Corps and a number of separate inspectorates for communications, electronics, armament, navigation, etc., plus an Air Observer Corps. Regionally the country is divided into four Air Commands, which, according to the proposals of the Royal Commission of 1946, were intended to correspond with similar Army and Navy regional commands. Such an organizational set-up could hardly be practical from the Air Force point of view, since an Air Force for obvious reasons should have a functional organization with centralized command and possess the capabilities of providing strong concentration of forces. The present organization has, how-

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ever, served a useful purpose in the course of the period of reconstruction, with a scarcity of experienced personnel and with a necessity of having senior officers in the districts to look after the interests of the Air Force *vis-à-vis* the older and more established Senior Services.

As a result of our N.A.T.O. membership and our obligations to that organization, we found it necessary to reorganize our Air Force in order to accomplish:

(*a*) A system of command which would allow it to be efficiently integrated into the N.A.T.O. military structure.

(*b*) The rapid and extensive build-up.

(*c*) A great increase in the number of long-term personnel necessary to accomplish a higher state of combat readiness.

The C.-in-C. of the R.N.A.F. last summer nominated a committee to examine and provide an answer to these questions. The committee handed in its report by the end of August, 1951. This report contains the following main recommendations:

(*a*) The C.-in-C. should no longer retain direct operational command, but execute his authority through two Air Commanders, one in Southern and the other in Northern Norway. The great distances necessitate the institution of two Air Commands. The C.-in-C. will thus have a sphere of responsibility similar to that of the Chief of Air Staff in U.K. and U.S.A.

(*b*) The C.-in-C.'s Staff should be divided into the following four departments:

(i) Operations.
(ii) Personnel.
(iii) Materiel.
(iv) Finance.

This is fairly similar to the Headquarters organization employed by the U.S.A.F.

(*c*) The establishment of an "Air Board" with functions fairly similar to those of the "Air Council" in the R.A.F., but—for the time being—with not quite as strong a position.

(*d*) The establishment of Air Force "bases," each comprising three squadrons (a wing) of about twenty-five aircraft each.

(*e*) The establishment of a C. & R. (Control and Warning) System to be utilized in a dual role, for air defence and for tactical and ground operations.

(*f*) The professional element to be increased by more than 100 per cent.

(*g*) The Anti-Aircraft Artillery to be transferred to the Army. The Air Force should retain operational control.

Most of these recommendations have, for planning purposes, already been accepted by our National authorities. Furthermore, steps have been taken to having the compulsory training time for National Service men increased to eighteen months.

THE POSSIBILITIES OF ACCOMPLISHING THE PROGRAMME WITHIN THE N.A.T.O. TIME LIMIT

It is assumed that the financial backing necessary for carrying out the programme will be granted. The training programme can be accomplished at N.A.T.O. and R.N.A.F. training establishments, provided the recruiting

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problem is solved in a satisfactory manner. This is first and foremost dependent on improvements in rates of pay and o.her Service conditions.

The extension of compulsory training for National Service men to eighteen months will make it easier to recruit personnel for the lower technical trades. A large number of the National Service men will be given six months' basic training and retained in the Air Force for another twelve months. With a shorter term of compulsory service it would not have been worth while to give the National Service man six months' training and one would have had to employ long-term personnel in the lower technical trades.

The responsibility of carrying out this extensive programme rests on the shoulders of the new C.-in-C. of the R.N.A.F., Lieutenant-General F. Lambrechts, D.F.C., whose war-time service in Coastal Command is well known to many of his colleagues in the Royal Air Force.

ASSISTANCE FROM THE R.A.F. AND THE R.C.A.F.

Since the end of the war and all through the reconstruction period, the Royal Air Force has provided the R.N.A.F. very valuable assistance in innumerable ways, and the Royal Canadian Air Force has once more opened its schools to Norwegian Air Force personnel.

Our squadrons have taken part in several air exercises with the R.A.F., in the U.K., in the British Zone of Germany, and in Norway. These exercises have been of very great value to the R.N.A.F.

Experienced R.A.F. officers have been on loan to the R.N.A.F. Group Captain (now Air Commodore) J. M. F. Grundy, O.B.E., served as adviser to our C.-in-C. for a period of one and a half years, and Wing Commander J. Mason, D.F.C., took an active part in the planning of the R.N.A.F. Staff College and is still serving on its Directing Staff.

SUMMARY

The build-up of an independent Norwegian Air Force was begun in 1945 within a very stringent and narrow economic frame. The progress was to be very slow and a long period of peaceful international conditions was anticipated.

The lessons learned in World War II and the increasing international tension brought about Norway's membership in the North Atlantic Treaty Organization.

As a consequence of its N.A.T.O. obligations, Norway pledged itself to build a fairly large Air Force in a very short period of time.

To aid in the build-up of its Air Force, Norway will receive considerable economic assistance in the form of deliveries of aircraft and equipment and training for R.N.A.F. personnel at American and Canadian Air Force schools.

If the necessary funds are appropriated and the aircraft and equipment delivered, the build-up will be accomplished as planned, provided personnel with the right qualifications are coming forward in sufficient numbers. This will be dependent upon considerable improvements in the conditions of pay and service.

The creation of a modern and efficient Air Force and our membership in N.A.T.O. will necessitate a complete reorganization of the R.N.A.F. Plans for this reorganization have already been worked out and the final decision from higher authorities is anticipated in the near future.

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Great Britain's team (Storbritannia—Great Britain) entering Bislett Stadium, Oslo, during opening ceremony of VI Olympic Winter Games

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THE OLYMPIC WINTER GAMES IN OSLO, 1952

By Captain Ragnar Wold, Royal Norwegian Air Force Reserve

THE VI Olympic Winter Games, which took place in Oslo, Norway, from 14th to 25th February, 1952, were different from their predecessors in many ways. This time the Games took place in the heart of a big city. Since Oslo acquired, a couple of years ago, several hundred acres of its northern "hinterland," the geographical centre of the city is no longer near the famous street of Karl Johan, but rather at a remote and modest little farm called Blankvannsbraten, well known to the tens of thousands of skiers who pass it on their Sunday cross-country trips. In the hills which surround the city proper, on the jumping hill of Holmenkollen, the bobsleigh run of Frognerseteren, the skating rink of Bislett just behind the Royal Palace, the best skiers and skaters of the world gathered for twelve hectic days.

There are advantages and disadvantages to be considered when choosing between a sizeable city like Oslo (half a million inhabitants) and small villages or towns like Chamonix, Garmisch-Partenkirchen, St. Moritz or Lake Placid where the Games had been arranged in previous years. The city obviously has more to offer in the way of amusements, greater efficiency in newspaper and broadcasting service, hotels and restaurants galore, etc. The small village, on the other hand, often fosters in its greater intimacy a more genuine spirit of friendship and conviviality.

There were other things to ponder, too, for the guests as well as the hosts, because this was the very first time the Games were being held in one of the Nordic countries. In previous games, events like speed skating and cross-country races had passed practically unnoticed—this time tens of thousands crowded into Bislett stadium or lined the winding trails through the wood-clad hills to see just those competitions. On this occasion one wondered how would the Norwegian public react to ice hockey, which had been almost unknown prior to this Olympic winter—or bobsleigh, which would be seen for the first time on a newly built run?

When the Olympic Games ended, Norwegians had the satisfaction of knowing that the international meeting had been a complete success. All the unpredictable factors co-operated beautifully: not only brilliant sunshine and blue skies but the successes of Norwegian competitors, added to the satisfaction of the home public. One shadow was cast on the opening ceremony, felt keenly by all and particularly by the many representatives from Great Britain and the Commonwealth: the news of the untimely death of His Majesty the King and the knowledge that his funeral had to take place on the very same day when the Games were officially opened.

Looking more in detail at the various individual events and groups of competitions, there are certain high-lights which will always be brought to mind whenever one thinks back to the Olympic days in Oslo.

The "alpine" skiers at Norefjell, some fifty miles west of Oslo, got off to an early start the day before the official opening, as the ladies' giant slalom race was the first competition to be decided in these Olympics. The young American girl, Mrs. Andrea Mead Lawrence, made her first bid for the slalom-downhill crown and brought the gold medal to the United States. When she duplicated

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this feat a few days later in the slalom run at Roedkleiva, she left little doubt that she is indeed today the outstanding woman skier in the world. When Stein Eriksen of Norway captured the men's giant slalom there was naturally great rejoicing in Oslo, and with his subsequent sixth place in the downhill and silver medal in the slalom event he could be ranked *primies inter pares* to almost the same degree as Mrs. Lawrence. At the same time the Austrians made a very impressive show as a team, as they were placed consistently close to the top in both the men's and the women's events. Among the English-speaking nations the British, Australians and New Zealanders played a rather modest part but became very popular with the crowds because of their pluck and "never say die" spirit. The Americans, on the other hand, were right in there bidding for top honours, and the Canadians were not very far behind. Great concern had been expressed prior to the Games about the lack of snow at Norefjell, but through an intense effort in the last couple of weeks all the courses were in good shape and safe in every way.

The "nordic" ski events were marked by the downfall of the Swedes. Only four years ago at St. Moritz they had made almost a clean sweep of the cross-country races and been well up in front in the combined event as well. This time it was the Finns and the Norwegians all the way. The silent men from Finland won the 32 miles cross-country race and the 4 x 6 miles relay, while their countrywomen brought home a triple victory in the ladies' 6 miles cross-country race. Second and fourth places in the combined cross-country/jumping event also went to Finland. The Norwegians on their side made off with the eleven miles cross-country race, the combination (first, third, fifth and sixth place) and the special jumping (first, second, fourth and sixth). This latter victory was, of course, tremendously popular with the crowd of 140,000 which lined the jumping hill at Holmenkollen on the last day of competitions to see the event which Norway has always dominated in the Olympic Games.

Speed skating has few followers outside of Norway, and it is hard for a stranger to imagine or even believe the tremendous enthusiasm with which the Norwegian public follows this event. The central figure of these Games was the one and only "Hjallis" Andersen, who won three gold medals in as many starts, setting up new Olympic records at the 5,000 metres (3.11 miles) and 10,000 metres (6.21 miles) distances. The sprint distance brought a double American triumph with Ken Henry capturing the gold medal.

Figure skating saw Great Britain winning its only gold medal of these Games as Jeannette Altwegg calmly went through her spins and jumps in the free skating in front of Bislett Stadium's 30,000 to take her first place handily. Miss Altwegg had built up an impressive lead by her near-flawless performance in the compulsory figures part, and the most determined efforts by runner-up Tenley Albright of U.S.A. and "the French panther," Jacqueline du Bief, could not alter the final outcome, though both Miss Albright and Mlle du Bief gave performances that left the crowd dazzled. In the men's competition the American Dick Button was never threatened and won easily, while James Grogan of the United States had to concede the silver medal to Hellmut Seibt of Austria by half a point according to the judges' rankings, although he was a few points ahead based on the score. The outstanding couple were Mr. and Mrs. Falk of Germany, and one of the most heart-warming happenings of these Olympics was the ovation given them (as well as other German winners) by the Norwegian public. If the Olympic spirit can bridge the gap between former enemies to the death, occupier and occupied, thus convincingly, then surely there must be some-

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thing about it that promotes friendship, tolerance and good will?

The ice hockey matches, however, at times left one wondering. Before judging too quickly and sternly the various angry clashes between competitors and failures to abide by the referee's decisions, etc., one should realize that there exists a fundamental difference in the concept of the game as such in the United States and Canada as compared to most ice-hockey playing nations in Europe. The tempers of the crowds are easily aroused, and while the erection of Jordal Amfi, Oslo's first and only artificially frozen rink, has created a tremendous enthusiasm for the game, the Oslo public has hardly yet had the opportunity to become familiar with the intricacies and varieties of ice hockey. This explains to a large extent why and how some of the American players earned a reputation for unnecessary toughness and lack of proper sportsmanship while all they intended to do was probably to "put on a show" to give the spectators their money's worth. Otherwise the ice hockey tournament, to the great surprise of the sceptical city fathers, turned out to be one of the great money-making events of the Games. The final outcome of it was never in doubt: Canada's team won, as usual, while the Swedes after a play-off match against Czechoslovakia captured the bronze medal and the European championship.

Well, now it's all over and it is to be hoped that all visitors to Oslo during these Olympic days carry home with them a lasting impression of Norwegian sports and sportsmanship, of fair and chivalrous competitions among the youth of the world, and of mutual respect and understanding that go far toward building a better world. We Norwegians have enjoyed playing hosts to sportsmen and spectators alike, particularly as we found that nearly all of them had truly grasped the fundamental issue, the basic idea of Olympic Games, that "the important thing is not to conquer, but to fight fairly—not to win, but to take part."

THE OCTOBER NUMBER

Feature articles, those of a lighter nature, news items of interest to Air Force personnel, letters to the Editor and any other material for publication in the October number of this Journal must be submitted NOT LATER THAN 7th AUGUST, 1952, to The Editor, R.A.F. Quarterly, "Chaseley," Eastbourne, Sussex

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LIFE IN A UNIVERSITY AIR SQUADRON

By G. Spencer Brown

THE life of a University Air Squadron is necessarily a nebulous concept, chiefly because it only comprises a relatively small part of the lives of its individual members. By this I do not mean that the training has to be skimped; indeed, it is usual for a member to spend most of his spare time with the squadron. But it is, after all, *spare* time he spends; flying training and the other activities of the Service do not take up the major part of his life as they would in a regular flying training school.

To the undergraduate member of a University Air Squadron flying assumes the status of a major sport. He gives to it about as much time as he would give to any other major sport such as rowing or cricket. This is usually about two or three afternoons a week, but it may be more.

A major sport is not usually considered to be the most important aspect of an undergraduate's life, though it may have an *equal* status with his "work" and other activities. Flying training must be designed to fit in with this scheme, and instructors have to rely much more on goodwill and enthusiasm in their pupils than on power to coerce them. The somewhat sporadic nature of training on these lines is, however, counterbalanced by the fact that the pupils are drawn from a class whose intelligence and integrity puts them above the average in speed of learning and responsibility.

In describing some aspects of life in the Cambridge University Air Squadron I shall try to keep to fairly general features which I presume are typical of squadrons; but I feel it is only fair to point out a combination of advantages which are certainly not possessed by all such squadrons. We are, in the first place, the squadron of a very large University, and in addition our airfield is within ten minutes' cycling distance of the colleges. The former means that our members can be selected from the widest possible choice of candidates, and the latter means that whenever we feel the need of a change and some fresh air we can cycle out to the field and, with luck, find a free aircraft and fly it. As a consequence of this saving of travelling time it is possible to indulge in a more ambitious flying programme and to train to a higher standard.

The University of Cambridge has always been to the forefront in flying, and its Air Squadron is the senior squadron of its kind. An organization almost as large as the Air Squadron is the University Gliding Club, which is one of the best known gliding clubs in the country and the largest in any British university. It comprises about seventy resident flying members, and many members of the squadron first learned to fly its sailplanes before taking to powered flight. However, to a glider pilot who is not also a member of the Air Squadron, the cost of learning to fly is considerable. In the squadron one is paid expenses and non-continuous training allowance as a Reservist, whereas gliding is an entirely non-subsidized sport and the members pay all expenses themselves. Thus a glider pilot pays out just about as much as he would receive as a Reservist.

Until last year the squadron consisted practically entirely of flying members. Since then a navigation section and a fighter-control section have been started, but they are quite small and new and so far have not had many repercussions on the life of the squadron in general. It is true that the navigators have brought

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us an Anson which is admirable for long cross-country flights; but it does not interest the pilots a great deal since they are not allowed to fly it. It is also true that the advent of the fighter-control section has caused applications from Girton and Newnham for the admission of women. This causes a sharp division of opinion.

It is therefore the life of the flying member that I shall chiefly discuss.

The first problem of the squadron is to select from a large bunch of freshmen, many of whom do not know whether they are going to like flying or not, those who will both like it and give keen and responsible service to the squadron. Of those who apply to join, only a small fraction can be accepted since membership of the squadron is limited to one hundred pilots. The selection is made by the usual means of personal interview, aptitude tests, selection board and medical examination.

Flight Lieutenant Wilson (right) and Pilot Officer Plowman setting off to Scotland in a Chipmunk on a navigational exercise

Most of the flying training is carried out in Chipmunks. Two Harvards have in fact just arrived, but a new member will almost certainly have his first flight in a Chipmunk. As it sometimes happens that he has never been airborne before, his first flight in the squadron can be a big event in his life.

Set flying periods are normally of forty-five minutes, and the pupil is allowed to book two or three of these a week. If he is keen he will go to the airfield more often in the hope of picking up a period which some other member has cancelled. Such a pupil soon goes solo, and has to stand drinks all round.

The next important event in the new member's career is the fifteen days' continuous training at a regular R.A.F. station—usually called the summer camp. The camp nowadays is split up into three periods of fifteen days each. Each member normally attends one of these camps, where it is possible for him

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to average about three hours' flying a day. Examinations in the ground subjects are held during these camps, and failure to come up to standard may mean the loss of the Reservist's bounty. Should a member also fail in flying proficiency, or show himself insufficiently keen, he may be expelled from the squadron.

The period of summer camp is one of the finest institutions in the corporate life of the squadron. I do not know any members who do not enjoy it; even the instructors and other members of the staff seem to enjoy it, although they have it for six weeks. Possibly they are sustained by the thought of their temporary freedom from the responsibilities of family life, though with most of the squadron away their wives must be terribly short of baby-sitters. But it all finally comes to an end, as all good things must do, and most of us convalesce gently for the remainder of the Long Vacation.

We have not so far mentioned ground training. The examinations at camp have to be on *something*, and are in fact mostly on the training syllabus which has been covered in lectures during the year.

The whole ground training syllabus is covered in three years. For this purpose the squadron is divided into three groups according to seniority, and each group attends a course consisting of three lectures a week in full term. The three weekly lectures for any specific group are held all on the same evening to save time. Special lectures and supervision classes are held for pupils taking instrument rating tests.

Lectures are normally given in the Squadron Headquarters—a large house, and its grounds, converted for the purpose. It provides the facilities of a members' club, and includes a mess which serves lunches daily and dinners on lecture evenings. Its grounds contain the lecture huts, and on the lawns members can usually be seen playing croquet and a special sort of putting golf (peculiar to the squadron) in which one is allowed to play one's own ball at the ball of one's opponent, and, with luck, hole in off it. His ball is thus sent, one hopes, into something difficult, like a flower-bed or a shrub. There is no game which gives more practice in keeping an even temper in an awkward situation, and it is recommended to anyone who fancies himself at putting.

Pilots in their third year aim to take the instrument rating test and gain their interim wings. When they go down from the University they usually transfer either to a Reserve Flying School or to an Auxiliary Squadron. Some take advantage of the seniority offered university graduates to obtain permanent commissions in the R.A.F. The transfer to an Auxiliary Squadron is only just now becoming possible to unqualified members, since facilities are now being provided to enable them to qualify for their wings as a matter of course. This is proving a great stimulus to the morale of pilots here, who are showing great keenness to prove that they can reach wings standard in three years of spare-time training.

Thus, as I have tried to show, the life of the University gains considerably from the presence of an Air Squadron; but there is also no doubt that the Service gains too by its association with the University. The University Air Squadron stands as a great educative influence in a place traditionally given to education. It does much to make the right people interested in flying and its problems, and ensures an adequate representation of these interests in the country as a whole. It is the place where the practical man and the theorist come together, to find that there is very little difference between either. It is, above all, the place where the Service and the University civilize one another.

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A ROYAL AIR FORCE ACADEMY

By Wing Commander D. Stevenson, M.B.E., M.D., R.A.F.

WE have entered a new age—the Air Age. Already it represents a period of scientific discovery and advance greater than ever before. It presents a great opportunity for good or evil. Which way we use this opportunity depends largely upon our sense of values, upon our acceptance or neglect of responsibility and upon our concept of right and wrong. In the event, action will lie with the youth of the age, educated to the standards of life and learning of their parents. What are these standards? Are they good enough to enable our children to meet the challenge of the future? If not, what can we do about it?

STANDARDS AND VALUES TODAY

During the past decade there has been a steady increase in State control of the individual. Many former individual and parental responsibilities have been taken over by the State. In moderation this need not be harmful. But too many people have seized the opportunity to thrust upon the State, with eager abandon, responsibilities and problems which should properly remain individual. This is a weakness and will quickly undermine previously accepted standards; as already indicated in the parental failure manifest in increasing instances of child neglect.

Increasing systems of control have bred "black markets" and fostered evasions and dishonest practices. Even the high-principled find it difficult to maintain their former code of ethics; while as a nation we have come to accept a lower code of behaviour and a frankly materialistic attitude. We no longer teach, and seldom practise, a pride in work, personal discipline, loyalty and obedience to proper authority—in brief, the pattern of behaviour which helped to make us great in the past. Such things are outmoded and scorned. It is fashionable, instead, to seek refuge in out-of-proportion psychological theories which urge free expression at the expense of discipline, and plead repressions and inhibitions as the excuse for lack of will-power and refusal to recognize right from wrong.

EDUCATION TODAY

At present we have larger classes, less individual attention and "a struggle to maintain the present position or, at best, to make small advances."[1] Theory is crammed into boys in a mad rush through examinations to the illusionary security of a degree or diploma. Examinations have come to mean more than experience, theory more than thinking. Too little time is now devoted to teaching boys to think for themselves, to develop a sense of responsibility and to absorb the basic manners which still "makyth man"; while false modesty leads us to gloss over our moral, economic and military record as a great nation. So we neglect a great opportunity to teach the ideals and traditions which we have established, as a measure of what we require of the next generation of our countrymen.

The foremost scientific advances in this age have been in the electronic field, and progress in nuclear physics has become vital. It is essential to the R.A.F.—and indeed to the age—that such developments should go on and be of value. But if the results are to have real value in the world we must have people trained and able to turn these discoveries to peaceful purposes, as well as to embody them in our forces of national security. This means that additional weight must be given to scientific training and instruction, without prejudice to proper grounding in the arts.

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EDUCATION FOR THE SONS OF THE ROYAL AIR FORCE

A very real problem of Service life has always been the proper education of, so to say, the sons of the Air Force. The alternatives are to take the children with you, or to leave them at a school at home. The former move is detrimental to the child's education. The latter course often involves expense beyond the means of the parents, especially when they are selective about the type of education which they require for their children. For the majority, therefore, there must be compromise and often repeated change of schools.

Much has been done to solve this problem, but more needs to be done if our Air Force sons are not to suffer from broken education as they follow their fathers round the world. The need is for boarding-school facilities at low cost, but supplying an education worthy of both our national and our Service needs.

THE QUALITY OF THE FUTURE AIRMEN

We have spoken of the Air Age, of the lowered standard of conduct and of the advances in electronics. What does all this mean in terms of the Royal Air Force and, particularly, of the new blood which enters it? It means that as never before we must ensure that our recruits to Regular service—irrespective of future rank and status—are intelligent, upright, self-reliant and keen to serve; that they have been taught habits of discipline of mind and body, yet have preserved their sense of initiative and spirit of adventure despite increasing parental worship of security—whatever that may now mean.

Writing on education a few years ago, Ginnett[2] asked: "Why should armies in peace time be unproductive? Why should they not be used as a positive instrument to promote culture . . .?" He referred to the lowered moral standards of our times as the product of a wave of passive barbarism, and looked to the Services to lead the fight against this insidious foe. He saw the Services able to do this if their members were educated to the "habitual vision of greatness." This is a bold concept, but represents a challenge which we ought to accept. And in doing so we should, also, satisfy those who would "recall to our youth of today the genuine passion for scientific inquiry, the missionary zeal and the disinterested hankering after adventure which have characterized the past generations of this country."[3]

Leadership is vital in any effective fighting Service—leadership in varying forms and at all levels. As James[1] has written: "However mechanized war becomes, in the last resort the morale of the men using the machines will be of immense importance, and, among the factors creating morale, leadership is one of the most important." Expanding this theme, he claims intelligence as an essential factor in leadership, and stresses the need for proper education in its development. "Even if many of the qualities that we should wish to find in our leaders are inborn, they nevertheless require a favourable educational environment for their development." We must aim, therefore, to provide the appropriate type of education for as many as possible of our future airmen.

EDUCATION IN THE ROYAL AIR FORCE

In the Cadet College and the Apprentice Schools of the R.A.F. much time is spent in the general education of our future officers and men. Technical training must, however, be given at the same time; and it would be unnatural if this did not tend to take precedence over the former, certainly in the minds and hearts of the students. The cadet enters the Air Force at or after the age of 18. His further schooling, therefore, lies more in the realm of adult education. But there

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is still too often the problem of making good some defect in schooling, in a subject essential to Service progress.

The apprentice enters the Service at about 16 years of age, spends some two and a half years in initial training, and is pledged to continued service. There is little time in which to make up any defects in schooling. And by that age many facets of character have become fixed beyond satisfactory remoulding. In these respects the 8- to 10-year-old is much more trainable than the 16-year-old. For this reason, incidentally, the earlier entry to Dartmouth—average age 13½—seemed a distinct advantage. This may be proved more forceably now that the entry age has been raised to 16.

A ROYAL AIR FORCE ACADEMY

There appears, then, a need to supply an education more likely to encourage proper standards of living; to provide regular Air Force recruits taught to certain definite standards; and to supply reasonable and acceptable educational facilities for the sons of the Air Force—whether its future members or not. And in meeting these needs there is the chance to lead the way in a new approach to education for stability, for leadership and, possibly, for the greatness which Ginnett earnestly demands. How can these needs be met?

There could be several ways of doing this, and different methods and means could be supplied for each and every one of these needs. But how much better if all needs could be met by the creation of a school sponsored by the Royal Air Force, inspired by it and designed to turn out boys educated to the standards required both by the Air Force and by the nation in this air age.

Such a school should accept boys at the 8-10 age period and plan its syllabus for a leaving age of 16 at the earliest, but preferably not before 18. Acceptance for the school should in no way imply compulsory entry into the R.A.F., for no one should be asked to decide his career at such an early age. Those who elected to enter the Service or industry, as apprentices, should be free to leave school at 16. As many as possible, however, should be encouraged to remain until 18, proceeding then to Air Force, Navy or Army cadetships, to a university or to civilian employment as they may themselves decide.

Sons of the Air Force should have preference and, if necessary, some degree of financial advantage. It would be proper, too, to prefer suitable boys already interested in the R.A.F., or whose parents hoped that this would come. In general, however, entry would be open to all who satisfied the school of their intellectual suitability, and whose parents were concerned to provide a liberal education in keeping with the times, but one which, in doing so, does not underestimate the need for purely basic education and practical learning.

It should be almost exclusively a boarding school, preferably run on public-school principles. It should aim to be accepted as of public-school status. On the benefits of boarding-school training, during the Second World War, Dent[3] wrote: "The children have experienced, enjoyed and profited from the closer-knit community life of a boarding school, which has given them an invaluable and unprecedented social training, developed their powers of leadership and responsibility. The parents have learnt a new respect and admiration for an institution capable of conferring such great and obvious benefits upon their children."

Ideally the school should be housed in suitable buildings which have beauty in themselves and their surroundings, thus giving the boys "the chance of spending their most sensitive and receptive years, the years of awakening, in surroundings whose beauty, consciously and unconsciously, is woven into the pattern of their everyday experience and remains their life-long possession."[3]

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Papillon[5] speaks of the youth educated at a public school as one who, on leaving, "brings away with him something beyond all price, a manly, straightforward character, a scorn of lying and meanness, habits of obedience and command, and fearless courage." In such attributes of boarding and public-school training lies, surely, the very essence of the type of boy we need in the R.A.F.

SCHOOL SYLLABUS

This is not the place to discuss, in detail, the precise education we should give, but only some of the principles which should be applied. Despite the age and its scientific implications, let us agree not to dispense with the classical education. Let us, too, keep away from specialization and all its dangers. In the final year at school, however, we may permit a moderate degree of specialization in the sciences, if the boy has elected to follow this type of career in or out of the Air Force.

Side by side with the basic academic studies should go the inculcation of sound moral and cultural standards in thought, word and deed, with adequate recognition of the great value of sport in the building of character and in training what Scott termed "young people of bold and active dispositions." In the basic studies it should be possible to meet the spirit of the air age by introducing examples and materials with an aviation flavour. The essential aim of it all should be what Livingstone[6] has termed "a study of the First-Rate in as many fields as possible." The staff-pupil ratio should not be above 1:15, preferably lower, and salaries should be sufficient to attract the best teachers.

CONCLUSIONS

We have traced a pattern of lowered standards in national behaviour and outlook, and forecast the expansion of the air age in which we live. Educational defects have been suggested, particularly in relation to the urgent and vital needs of the R.A.F.; and we have recalled the ever-present difficulty of educating the sons of the Air Force.

As a solution to this is suggested the formation of a boarding school, sponsored by the R.A.F. and embracing all that is best in the public-school training in a way of life and learning. The education would be in keeping with the air age, without detracting from the classical background essential to a clear thinking and balance, and would have regard to the development of leadership. The boys would, naturally, be brought into touch with the R.A.F. and would learn of its traditions, its achievements and its purpose; but there would be no obligation to join the Service.

If the creation of an Air Force Academy serves but to solve the problems of educating the sons of the Air Force, then it will have saved many boys from the life-long penalty of disordered schooling. If it, also, becomes a source of good recruitment then it will pay a rich dividend to its Service creators. And if, in addition, it turns out young men who are proud to serve their country, are trained to act responsibly and with dignity and integrity, then it will have become of lasting value to nation and Air Force alike.

REFERENCES

[1] N.U.T. Annual Conference (1951). Presidential Address.

[2] Ginnett, J. (1944). THE ROYAL AIR FORCE QUARTERLY, Vol. 15, No. 3.

[3] Barker, E. et al. (1947). *The Character of England*. (Oxford University Press.)

[4] James, E. (1951). *Education and Leadership*. (Harrap; London.)

[5] Lewis, R., and Maude, A. (1949). *The English Middle Classes*. (Phœnix House Ltd.; London.)

[6] Livingstone, R. (1944). THE ROYAL AIR FORCE QUARTERLY, Vol. 15, No. 4.

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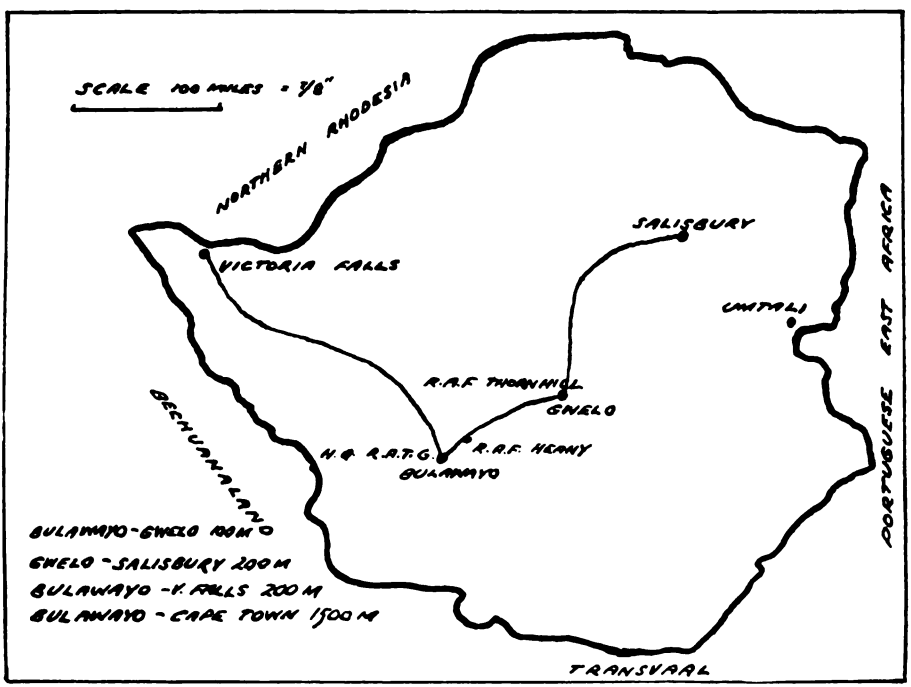
RHODESIA—AN IMPRESSION

By Wing Commander C. D. North-Lewis, D.S.O., D.F.C.

IN comparison with life in England today, circumscribed and beset as it is by the trammels of austerity—by the sink, the ration queue and the weather—life in any other country must appear as a Utopia, an impression which is fostered by those colourful and glossy magazines which delight in depicting lands that seem full of sunshine, ease and plenty. It is natural that the Service man and his wife should indulge in a little wishful thinking when they find themselves coming to Rhodesia. It is natural that they should imagine a country where the weather is perfect, and dark dripping days are a thing of the past; where there is no rationing and all those delicious foods so long unobtainable abound; where servants are plentiful and their wages are low; where houses are to be had for the asking; where clothes and cars and all the things which make life so much easier can be found. And it is natural that many, when they find this pleasant day-dream is only a day-dream, should suffer a reaction. A reaction that is born of disappointment. but for all that, makes them critical of the life and conditions and makes them long for the familiar things they have left behind. As a result they never find or see Rhodesia and thus never enjoy it.



A glance at the sketch map will show the geography of the country in rough and simple terms. Between these towns lie mile upon mile of flat bush country of red earth studded with thorn trees, alternating with open plains covered with long pale-brown grass. The few towns, rising as oases of civilization in an otherwise deserted land, are joined together by strip roads and in the case of the major towns by a single-track railway. This is, of course, an over simplification, but to

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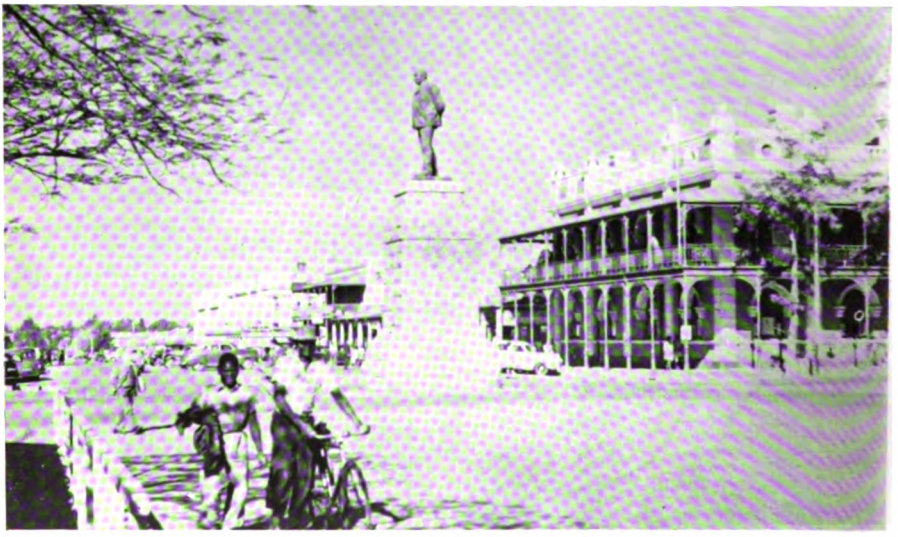
those accustomed to a country in which village follows village and the ever-changing land in between is studded with houses and life, this emptiness and sameness are striking.

The layout of the Royal Air Force is as simple as the geography. The Headquarters is at Bulawayo, with the Equipment M.U. alongside it and living with it. One hundred miles away at Gwelo, Thornhill, one of the two F.T.Ss., lies on the edge of the town, while Heany, the other, and the Engineering M.U. are situated together out in the bush eighteen miles from Bulawayo. Heany, therefore, tends to be rather isolated and a self-contained community because those eighteen miles over bad roads are apt to deter any but the most determined.

In the make-up of any country the weather plays an all-important part. Broadly the year falls neatly into two halves—the summer from October to May, when it is hot and rains; and the winter from May to October, when it is cold in comparison with the summer and when it does not rain. The summer, in its turn, consists of baking-hot spells—although the temperature seldom goes much over



Main Street, Bulawayo

90° F.—broken by violent downpours. In January this year 5¼ inches fell in 75 minutes during one storm. The rains, when they start, and they never start when they are meant to and often fail for long periods when they are most needed, turn the brown arid landscape green overnight. On the baked earth, grass appears and the thorn bush breaks without warning into leaf, the whole parched country changes its character. Winter is more agreeable and settled. The sun, not much hotter than an English spring day, shines from a clear blue sky, though every now and again low misty clouds roll up, and the wind, driving great brown clouds of dust before it, cuts to the bone. And for the keen gardener, as if there wasn't enough to contend with, frost on occasions wreaks havoc among flowers and vegetables.

For the newcomer a house is the most important need. And housing is difficult. There are Air Force quarters, but to get one of these takes about a year or possibly longer. Otherwise, there are only a few houses or flats to let on short leases, mainly for three to six months and often for shorter periods. As may be

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imagined, the competition from both the civilian and the Air Force is keen, and the rents are accordingly very high and are tending to rise. Hotel accommodation is much the same story. Hotels in Gwelo are refusing to accept boarders for long periods, and while it is possible to live in hotels in Bulawayo indefinitely, those that will accept the residents are the cheaper ones. While this may sound a dark picture, it is the main factor which has caused the most distress. It is, therefore, far better for an officer, or an airman, to come without his wife, to find settled accommodation or, failing that, to wait for a quarter. This may sound depressing advice, but none the less, in present circumstances, even if unpalatable, it is sound.

Housekeeping and its attendant mysteries are comparatively easy. There is no rationing except by the purse; and the cost of living is rising daily. There are, of course, periodical shortages caused by the vagaries of the weather, but to a people hardened on the testing ground of post-war England these are but child's play. Servants are reasonably plentiful and they are comparatively cheap, but they

Rhodes's Grave in the Matopos

suffer from all the weaknesses of an immature race—unreliability and an aptitude for lying which would shock the most hardened sinner. They are certain to drive a conscientious housewife to distraction, but they do carry out those essential tasks which make life so much more pleasant. However, this sudden relief from household chores does leave many women with time on their hands and unless they take up some active interest they soon find themselves getting bored.

In the shops can be bought most of the things that are needed. They naturally don't compare in their range of goods with the larger London stores, but they do stock many things which have been difficult or scarce in England—nylon stockings are, of course, the most obvious example. Most officers will find a car is absolutely essential. All the English makes can be bought without much delay. And provided the car has been in the owner's possession for two years, it can be imported into England on his return, without the payment of purchase tax, although for anyone posted home before these two years are up, the Customs in-

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sist upon the payment of the full purchase tax—an arbitrary and in most cases an unjust ruling.

Entertainment follows the normal pattern. The towns, and for that matter the stations, have cinemas. The films are reasonably up to date and the programmes are much the same as those in provincial cinemas. There is no professional theatre except the occasional tour by London companies, but these charge prices which would make even the West End blush. In Bulawayo there is an active amateur dramatic company who manfully attempt to fill the gap. The bars close at 9.30. There is, however, a public dance at least once a week.

Every type of sport is played, and in the local soccer and cricket leagues the R.A.F. teams play a leading part. If there is a national game, then it is rugger, at which Rhodesia twice defeated the All Blacks during their last tour. For those who enjoy less competitive sports, tennis, squash and golf are all played extensively, although keen golfers must learn to adapt themselves to vastly different conditions, and must learn during the dry weather to play without shame, a most effective type of hockey shot. Swimming, unfortunately, is restricted to swimming baths, as from most of the dams and lakes a virulent disease known as Bilharzia can be caught.

Holidays are limited. There are three possibilities. There is South Africa, and with it the sea. This is expensive but it is well worth while if it can be afforded. There is the Game Reserve and the Victoria Falls which should not be missed by anyone who comes out. And there are the Eastern Districts—the highlands of Rhodesia—which lie around Umtali. Here is scenery not seen elsewhere in the country.

And finally, there are the people who live in Rhodesia—the Rhodesians. Rhodesia is a young and rapidly expanding country, and as in all young countries, the people are proud. Proud of their country; proud of the development which is taking place; proud of the part Rhodesia is playing in Commonwealth Councils. This pride, as is natural, is sensitive of criticism. And Rhodesians resent the visitors—and all officers and airmen are visitors—who criticize the Rhodesian way of life, their institutions and their country. But the Rhodesians are most hospitable and ever ready to entertain those they come to know.

It has not been possible in the space of so short an article to discuss all the many and varied aspects of Rhodesia. Emphasis has purposely been laid upon the difficulties and not upon the many attractions which can be discovered by each individual for himself, provided he is prepared to adapt himself to the country and the Rhodesian way of life.

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THE AIR FORCES IN PARLIAMENT

STATEMENT ON DEFENCE, 1952

HER MAJESTY'S Government propose to spend on defence, during the financial year 1952-53, a sum of £1,462,200,000, according to the White Paper, "Statement on Defence, 1952" (Cmd. 8475, H.M.S.O., 6d.) published in February this year. That represents, as the Prime Minister said in the House of Commons on 5th March, "the utmost we can do during the present year, and it is certainly much more than any other country in the free world, except the United States, is attempting." Yet it is not enough to ensure our safety, and Mr. Churchill admitted that too, going on to say that he relied upon the "rapidly growing and already overwhelming power of the United States in the atom bomb to provide a deterrent against an act of aggression" while a defensive front in Western Europe is being formed.

It has become quite clear recently that the new and expanded rearmament programme announced in the early part of 1951, involving an expenditure of £4,700 million to be spread over three years from April, 1951, to March, 1954, cannot be carried out in full. The reasons for this disappointment are purely economic. There is a shortage of steel and there is a shortage of money. We need not go into these matters further than observing that the shortage of steel is a world shortage and cannot immediately be overcome, that everything bought in the world markets must be paid for, and that the people must be fed, clothed and housed. Hence a nice balance has to be maintained between production for home consumption, production for export and production for rearmament. Before the last war, the German people were confronted with a choice between guns and butter, and they were told which to choose. A similar choice confronts our nation today, with this difference: that the choice is free.

That being so, it is all the more necessary to ensure that we get full value for every pound spent on rearmament. The estimates for the current financial year for the three Service Ministries, with those for the Ministry of Supply and Ministry of Defence, together amount to £1,462,200,000 gross, or £1,377,200,000 net after allowing for sterling "counterpart" arising from economic aid from the U.S.A. Of this sum, £437,600,000 net (nearly one-third) is estimated for the Royal Air Force and Air Ministry. The intention is to continue the policy adopted eighteen months ago, which was "to increase the front line of the Air Force in all theatres and in particular to expand the forces placed under the Supreme Allied Commander, Europe; to provide it with modern equipment; and to overhaul the radar network of the United Kingdom."

For the reasons already mentioned, some disappointment has been experienced in carrying out this policy. The programme has inevitably fallen behind schedule. "It is our air power," said the Prime Minister, "which causes me the most anxiety. Deliveries of modern aircraft are seriously behind the original programme." And he announced that he had ordered "super-priority" to be given to the production of the latest and best types of fighter aircraft, without seriously affecting the production of other things required for the equipment of the armed forces.

The greatest need of the Royal Air Force at present is for modern aircraft in the squadrons. There are apparently no swept-back wing fighters, such as the American F.86 and the Russian MIG-15, in service with the R.A.F. The

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difficulties of keeping armaments abreast of technical developments in such rapidly developing machines as aircraft were pointed out in the April number of this Journal, and H.M. Government are fully aware of them. They realize as well as anyone what a misfortune it would be "if war should come at a moment when the enemy has greater advantage in modernity." Yet some risks must be accepted, and there is much danger in ordering new types straight off the drawing board. Still, we have confidence that the psychological moment will be chosen and that war, if it comes, will find us as fully prepared as it is possible to be.

At the same time it may be noted that there is a tendency in some quarters to exaggerate the efficiency of the Russian MIG-15. Major Jabara of the United States Air Force, who has recently given lectures to staff officers and aircrew at the request of the Chief of the Air Staff, insists that it is a highly specialized interceptor aircraft with very limited range and endurance. He also says that the American Sabre-jet is better than the MIG below 35,000 feet; and even as we write comes the news that five MIGs have been shot down by Sabre-jets in North-West Korea.

Great efforts are now being made to expedite the production of the new Hawker and Swift day interceptor aircraft, both of which are of much more recent design than the MIG-15. But it is clear that it may be several years before adequate numbers of these superior modern fighters are in service.

It is gratifying to learn that the Commonwealth countries are contributing to our air strength in certain tactically important places. Canada has offered to supply the Royal Air Force with a number of Sabre-jets for service in the United Kingdom and in Europe. These aircraft will be built in Canada, but the engines and equipment will be furnished by the U.S.A. Australia is sending a fighter wing of two squadrons to operate with the R.A.F. in the Middle East.

MANPOWER AND RECRUITING

It is not expected that the increase in the number of front-line aircraft or the improvement in their quality will involve a proportionate increase in the total manpower, but it is realized that a longer period of training is now necessary, not only for aircrew but also for some of the technical ground trades as well. The training organization of the Royal Air Force is advancing, and the response to the New Trade Structure has been most promising.

In order to increase the numbers of men available for the forces this year, there will be five registrations of young men for national service instead of the usual four. (This can be done because one of the four registrations was dropped in 1948.) Provided that the international situation allows, all regular airmen who have been retained beyond their normal term of embodied service as a result of the Korean emergency will have been released by September, 1953. Some 4,700 Class G reservists of the R.A.F. are expected to be called up this year for training on much the same lines as in 1951. Most of them will be given refresher training in the Control and Reporting Organization.

Recruiting for the regular air force has improved considerably of late. Several factors have contributed to this: the pay increases of September, 1950, the three-year engagements, longer service careers and the New Trade Structure. A comparison of the figures of regular recruiting for the R.A.F. during the past five years is interesting. From 33,300 in 1947 they dropped to 13,600 in 1948, and to 12,200 in 1949; then they rose steeply to 23,600 in 1950, and again to 44,900 in 1951.

Another factor which makes for favourable recruiting but is apt to be over-

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looked sometimes is the ease with which a regular airman can become resettled in civil life after leaving the Service. An intensive drive to improve resettlement prospects has been made with great success, thanks largely to the work of the Advisory Council on the Relationship between Employment in the Services and in Civilian Life. This council consists of representatives of the Ministry of Labour and National Service, all three Services, Industry and Commerce, Local Authorities and others. The Air Member for Personnel represents the Royal Air Force. Largely as a result of the work of this council and of the Ministry of Labour and National Service, all who join the regular air force may be reasonably sure of a satisfactory career in civil life on completion of their embodied service; and it is pleasant to note that at the present time there is virtually no unemployment amongst airmen and airwomen when they leave the Service.

The policy, noticed in the April number of this journal, of organizing, arming and training officers and men in depots and training schools for use in an emergency against enemy airborne troops landing in the United Kingdom has been implemented. No less than 502 mobile columns have been formed from the three Services, and all ranks engaged in these activities appear to welcome their realism and the variety they bring in the daily routine.

OPERATIONAL COMMANDS

The operational commands of the R.A.F. engaged the attention of the House of Commons on 18th March and of the House of Lords on 3rd April. Introducing the Air Estimates for 1952-53, the Under-Secretary of State, Mr. George Ward said that until Swifts and Hunters were available in sufficient quantity the expansion of Fighter Command would necessarily be carried out with the latest versions of existing types. Nevertheless, he said, the present expansion was adding "very considerably to the security of the country." Fighter Command's day fighters were "still capable of intercepting and shooting down any type of enemy bomber likely to invade these shores for some time to come." Only in fighter versus fighter combat was our inferiority likely to be apparent for a time; and here we could rely on the Sabre-jets of the American and Canadian air forces stationed in this country, as these fine aircraft had proved themselves "in many ways superior to the MIG-15 in combat. All night-fighter squadrons in Fighter Command now had jet aircraft and so had the Royal Auxiliary Air Force fighter squadrons. Expansion would increase and more and more Venoms would be put into service during the year."

Turning to Bomber Command, he said that we could not of course have a bomber force as big as we had in the last war. "Our aim must be to achieve striking power with fewer aircraft by increasing the bomb load, by greater accuracy and by the use of more effective weapons." Hence the development of "our navigational and bomb-aiming devices, which are doubly necessary owing to the increased height and speed at which modern bombers operate." Though we must rely at present on the Washington and Lincoln for our medium bombers; when the Valiant is available in quantity our bomber force, in conjunction with that of the U.S.A.F., "should be able to fulfill all the tasks required of it." The present expansion of Bomber Command was confined to the Canberra, a light bomber designed to be used primarily in support of the Supreme Commander in Europe but also to be used by our Photographic Reconnaissance Force.

The expansion and re-equipment of Coastal Command was, the Minister said, proceeding steadily. Shackletons had proved satisfactory for maritime recon-

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naissance and the first Neptunes were now being received from the U.S.A. The question of the control of Coastal Command in time of war was also debated in the House of Commons on 18th March. The sinkings of the *Bismarck* and of the *Prince of Wales* by aircraft during the last war had shown dramatically the effect of air power on sea power, and the Admiralty were now fully convinced that air power was essential to the effective operation of surface ships. Naval operations in the next war were not likely to consist of battles between opposing fleets of surface ships but of submarine hunting by surface ships and aircraft, some of which (aircraft) would have to be shore-based. It was suggested that Coastal Command should be separated from the Royal Air Force and placed under the control of the Admiralty for all purposes. However, an amendment calling for an impartial inquiry into the working of Coastal Command, in order to ascertain the best form of administrative and operational control was, by leave, withdrawn; and this question, which seems to come up more or less regularly every few years, was again shelved. By way of compensation, it was suggested at another time that "the whole control of guided missiles and of Anti-Aircraft Command should be taken from the Army and the Ministry of Supply and handed over entirely to Fighter Command." Like the angels, we shall not venture to tread upon this controversial ground.

The planned expansion of the Second Tactical Air Force, the Minister continued, was greater than that of any other single command, and its night-fighter force was to be built up. Venoms would strengthen the fighter-bomber force and a strong top cover force of Sabre squadrons would be formed as soon as these aircraft were received from Canada. Steps were being taken to make 2nd T.A.F. fully mobile, as it should be; and this involved "putting practically everything on wheels except the runways."

Unfortunately the highly desirable expansion of Transport Command had had to be delayed while the expansion of the other operational commands was in progress. Meanwhile, we should rely on "the considerable resources of civil aviation." In this connection, Lord Balfour of Inchrye in the House of Lords debate suggested that too much reliance should not be placed on civil aviation to supply the lack of Service Transport aircraft in war, good though it was; because that too was insufficient, and civil aircraft were not well adapted to airborne operations which involved more than a mere air-lift. It was desirable, he said, to encourage both the nationalized corporations and the charter companies to be prepared to supplement the services of Transport Command; and another peer recommended the greatly extended use of aircraft instead of ships for "trooping" as it would considerably reduce the number of men "in the pipelines" between the United Kingdom and the several places overseas where troops had unfortunately to be maintained in large numbers at the present time.

As to the future, the Under-Secretary of State said that research and development were proceeding continually. Guided missiles of various kinds were being developed. Some would be air-to-air, some air-to-ground, some ground-to-air and some ground-to-ground. Improvements in fighter armament were being planned, better detection of low-flying enemy aircraft was promised, and radar and bombing aids were being improved. And he concluded: "The unity and mutual support of the air forces of the free world, working in the closest possible accord as members of a team, can provide a powerful deterrent to aggression and a strong first line of defence if war should come. The Royal Air Force has a vital and formidable task. But it will tackle that task with the same courage, determination and devotion to duty with which it earned, so short a time ago, the admiration of the world."

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FURNISHING MARRIED QUARTERS

By "Station Master"

THE design of R.A.F. Married Quarters is the responsibility of the Directorate of Works, Air Ministry, and the construction is placed in the hands of a contractor. Once a quarter is built and accepted by the local R.A.F. authorities, the furnishing of it becomes once again a R.A.F. responsibility. This latter responsibility has become an unsatisfactory one for several reasons:

(i) The need for the supply of large quantities of furniture coincides with a national shortage of raw materials, particularly timber.

(ii) The ordering and storing of large quantities of furniture for new quarters as they are built is a headache for Station Equipment staffs.

(iii) Due to the reduced size of the new type Officers' Married Quarters many of the standard items of furniture are unsuitable for the houses.

(iv) The quality of furniture at present supplied is poor, and requires frequent repair, throwing a heavy load on Station Workshops.

At one station where a large number of new married quarters have been built in the past eighteen months, and yet more are planned for 1952, the storage problem has had to be met by taking over a complete hangar as a barrack store. This in turn means that the furniture, although stored under cover is spoilt by damp, and many man-hours are wasted by workshops personnel in reconditioning new furniture before it is used.

As regards the type of furniture which is issued to the new type quarters, criticism may be levelled on two scores: first, unsuitability, and, secondly, inadequacy. For example, a heavy kitchen table, an equally heavy pair of step ladders, and an ungainly wardrobe for the downstairs hall, have no place in a modern small house, and are wrong wherever they are placed. The supply of three small chests of drawers for a house intended to sleep five persons is, on the other hand, completely inadequate, the scale being laid down, presumably, in view of the small dimensions of the rooms and the provision of built-in hanging cupboards.

All these may appear minor points which should be overlooked and forgiven in view of the over-all rosy picture of improved housing conditions. The Air Ministry cannot be expected to select new furniture for each different type of quarter; and seeing that any form of furniture is difficult to come by these days, occupants of quarters might be told to keep quiet and be grateful for what they have. But why not attack the problem from a new angle, and build furniture—or most of it—into the houses? The designers of boats and caravans have given the lead in making the best use of limited interior space. Do they wait for the owner or occupant to bring along a van load of assorted domestic articles and solve the jig-saw puzzle of fitting them into the different shapes and sizes of rooms? No, most certainly not! They incorporate nearly all the furnishings as fixed parts of the interior design. No doubt, these designers have been influenced by the fact that the objects of their designs are subject to movement and shock, whereas an Air Ministry quarter is not—normally! But, whatever their motives, the result is that they have set a high standard of interior decoration, using almost entirely fixtures. Added to this their use of timber is economical.

The design of the new quarters is in line with modern development in that

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it incorporates a kitchen with all built-in cupboards, and bedrooms with built-in hanging space. But, surely, we need not be content with being up to date; rather let the R.A.F. give a lead in new ideas. Let us produce the first "fully fixtured" married quarter. The first aim might be to produce a house which, on being taken over from the contractor, would only require an issue of the following barrack stores:

(i) Curtains.
(ii) Carpets.
(iii) Kitchen utensils, crockery, brooms, etc.
(iv) Bedding.
(v) A table.
(vi) Chairs.
(vii) Cushions and covers for settees.

How is this simplification to be achieved? Here are a few ideas.

Beds. All beds, double or single, would be of the type which folds vertically into a wall cupboard. This cupboard would be flanked by other built-in cupboards providing hanging space, shelves, bedside table and lighting, and a full-length mirror. Any bed not required could thus be folded away and the space used for other purposes.

Dressing tables and chests of drawers. These would all be built in to all bedrooms, including a mirror with indirect lighting for the dressing tables.

Bathroom. Each bathroom would have a built-in wall cupboard with mirror, and a soiled-linen container boxed in under the basin.

Tables. Let-down flap-type tables should be used for kitchen, ironing board, and even for the dining-room. Ingenuity would be needed to make the last-named attractive, but there is no reason why it should not be done. The present type folding card table is good and should be retained, but possibly modified to have three instead of two sections. It could then be used when necessary as an additional, or alternative, dining-room table.

Settees. The present type drawing-room settee is too large and unwieldy for the new houses. A built-in corner settee should be substituted.

Bookcases. Built-in shelves should be a *sine qua non* in any living room, and under this heading the provision of a sideboard in the dining-room can be included.

What would be gained and lost by adopting this policy? The immediate gain would be to the equippers, whose task in providing and maintaining furniture would be eased. Beyond this there should certainly be an appreciable saving in expenditure to the Service. The housewife would also benefit by facilitated cleaning, and the ability to enjoy more space when required. Against these gains would have to be counted some loss of flexibility in arranging interiors to suit individual tastes, though simultaneously there would be greater freedom to make extra space available in the bedrooms when desired. On the score of maintenance, fixtures would, of course, have to be repaired *in situ*, instead of being taken to workshops or replaced. However, it is reasonable to expect that, provided the Air Ministry insist on the use of satisfactory timber, the maintenance problem should be small, and the new "all fixture" house should be a success both financially and domestically.

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DOMESTICS

By Joan Shales

HAVE other people in the Services had experiences with domestics such as we did between the two wars? A strange assortment of maids, batmen, married couples and nannies of various nationalities came and went, all types from excellent to quite the reverse.

Gladys was the first. I engaged her when I was a bride and although my knowledge of cooking was negligible, hers was nil! But by keeping one jump ahead I managed to train her and in time we both became fairly proficient. However, Gladys made a bad mistake. At Christmas we shut the house up and all went away. On returning, instead of finding a warm welcome, we had to wait in the rain and dark for two hours, after which Gladys appeared wearing my trousseau clothes and using my suitcase. Unfortunately for her she had missed a connection and was later back than she intended!

About this time my husband was posted to the Middle East, so for the next five years there were native housemen to deal with. They were dressed in a long white "galabeah," wide red belt and red "tarboush" and were usually well trained by previous English employers. The good cook-houseman would be given his daily orders, needing very little supervision while he cooked, cleaned, valeted, shopped and so on. If last-minute guests arrived, he would be quite unperturbed and somehow provided a plentiful dinner, the guests sometimes recognizing their own table linen or silver which he had borrowed if he was short, or even their own houseman who had been called in to help.

We started off with Attik, who was lent to us by someone who went to England on four months' leave. He was a most capable little man, so energetic he almost ran while doing his work. We became quite attached to him and hoped he would like us much better than his original employer; but alas, no! He went back. In those days there were always plenty of native servants waiting to be employed, so within an hour another man was installed. Achmed stayed only a short time because he was inefficient, after which there was Mahommed who stole the silver. Then we found our treasure Abdul, who remained with us for over two years. He was an excellent servant, capable, reliable and kind.

When the first-born arrived I engaged Miss Gray to help, but as she was the

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only single girl on the station she was greatly in demand. There were always half a dozen young men waiting to take her out to tennis, dancing or swimming while I did her work! So then I found "Nannie," one of the elderly old-fashioned kind who only had one failing—she used to cry and cry whenever there was a "khamsin" (hot wind from the Sahara) or a sandstorm. How we dreaded those winds, and sometimes they would blow for days on end! Nannie remained our devoted friend until she died, but owing to her health she would not return to England on leave with us, so being a bad sailor I had to engage someone else. We did, but oh dear! She was a dour Scotswoman who ill-treated the children and upset the entire ship's company with her tempers and complaints. My husband said to the Purser: "You have my full permission to throw her overboard." On returning to Egypt we took another nurse back at great expense, but she married a month or two later.

We were then moved to Palestine, where we lived for six months in an hotel in Tel Aviv. We were very touched one day to find our faithful Abdul sitting on the steps. He had followed us up from Egypt, but having no house we could not employ him, so he joined the Arab Legion under Glubb Pasha, looking handsome and proud on his camel.

Later we moved to a bungalow in an Arab village where we employed two housemen and a Christian Arab girl as nurse to the children, but she was frightened of the housemen who were Moslems and every time we went out she barricaded herself and the children in a bedroom. So that did not last!

Raffik was the cook and all seemed well until one evening when we were visiting some friends, sitting on their veranda from which there was a fine view of the Jerusalem mountains in the sunset, we noticed there were a great many people spread over the aerodrome. On inquiring, we were told that they were looking for a would-be murderer. When we returned home we found crowds of Arabs inside and outside our bungalow—it was Raffik, who had nearly been murdered! He was taken to hospital and somehow survived three stab wounds in the back.

That left Mohammed and he turned out to be another treasure such as Abdul had been. He was a tall, fine-looking Palestinian Arab of thirty-six, with a little wife of fourteen years old, whom he brought to see us occasionally. He cleaned, cooked, shopped and valeted, and above all, did his best to safeguard the children, their nurse and me during the riots when my husband was away on duty. Mohammed slept on a mattress outside my bedroom door with a knife ready for several weeks until the troubles temporarily subsided and it was safe to walk about the village again. Mohammed occasionally brought us small offerings of fruit and so on but his most embarrassing present was an adorable baby gazelle which announced its presence by leaping into my bedroom at seven o'clock one morning! We loved it while it was small but it grew too large, ate every vestige of green in the garden, cigarette ends and even a child's kite; it butted everyone who went near, so we gave it away and subsequently heard it had been eaten.

I had meanwhile engaged a refugee from Hitler, a German Jewish girl named Maria, to look after the children. We wondered if it would answer having three different nationalities in the house, but it did, and we all remained very amicable for eighteen months. In fact, Mohammed and Maria got on so well together that he said that at his next job he would "make trouble with the Nannie" so that she could go there instead! It was brave of that girl being the only Jewess in an Arab village, but they got to know and like her and she was quite unmolested.

We sadly parted from Mohammed on returning to England, taking Maria with us. She went back to Palestine after some time and our troubles started! A succession of people came and went. There was Florence, who never stopped talk-

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ing; Kathleen who, unknown to us, always went out when we did, leaving the children screaming; Lily, who was gradually passing our possessions wrapped up in parcels to her soldier friend; Olive, who was "in trouble," and so on.

Then we had batmen. James was an orphan of about eighteen years old, and the only thing he loved in this world was his motor bicycle. He would be tinkering about with it and trying it out at all times instead of doing his work, until one day he went off on it never to return, complete with all my husband's evening shirts, collars and socks, etc.

We did not know Deake was an epileptic until he attempted suicide and was removed to a mental home. He escaped and came to the door when I was alone in the house, with his neck and wrists bandaged, to ask for his job back. He was an excellent batman and I was sorry not to be able to employ him again.

We had a married couple after this. They were getting on in life and had obviously been used to better things. When the husband was asked if he could wait at table, he drew himself up and said: "I have been to many banquets—as a guest, of course." But his poor little wife did all the work while he sat and smoked. If guests came and I rang for refreshments he would come in and say, "My wife is much too tired," and go out again with great dignity.

However, it was not always a tale of woe. I remember one interval at least of complete peace and harmony. We had two young country girls who were happy and jolly, the wages they asked for being twelve shillings and six pence and eight shillings and sixpence per week respectively, which hardly seems credible nowadays. They stayed with us until we were moved to a distant R.A.F. Station, where we acquired Ruby, who was the last of a long list of oddities who made their home with us temporarily. She had the longest reddest nails imaginable, of which she was extremely proud and she would do no work which would endanger them. War broke out, we had twenty-four hours' notice to vacate our quarter, and Ruby went home with a headache, leaving me to cope with packing and nursing the children with whooping cough!

Ever since then there has not even been the opportunity to worry over domestics.

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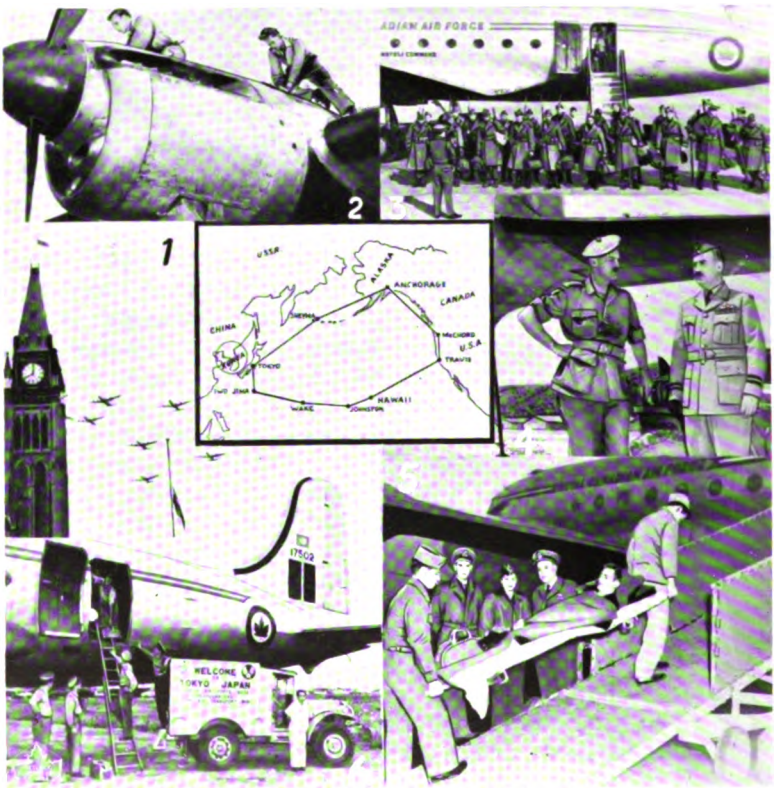
ROYAL CANADIAN AIR FORCE
KOREAN AIR LIFT



[*National Defence Photo: Canada.*

The map shows the route : (1) 426 Squadron's North Stars flying past the Peace Tower, Ottawa; (2) Ground crews at work; (3) Combat troops arrive at Tokyo; (4) Air Commodore A. D. Ross, A.O.C., Air Transport Command, visits Brigadier-General J. M. ("Rocky") Rockingham, Commanding Officer, 26th Canadian Infantry Brigade, in Pusan; (5) War casualties emplaning; (6) Arrival of first North Star in Japan

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OUR COMMONWEALTH AIR FORCES

ROYAL CANADIAN AIR FORCE

THE THUNDERBIRDS OVER THE PACIFIC

ON 27th July, 1950, the R.C.A.F.'s 426 Transport Squadron, known as the Thunderbirds, began its part in the world's greatest air transport operation, the famed Korean airlift. On that date, with the majestic snow-covered peak of Mount Rainier towering in the background, three North Stars of 426 roared down the runways of McChord Air Force Base, outside Tacoma in the State of Washington, headed for Japan.

For the Thunderbirds, the airlift was on—and it's been on ever since. This July, 426 looks back over two full years on the airlift, and an impressive record of operations that matches its record as a Second World War heavy bomber squadron in the R.C.A.F.'s 6 Group in Yorkshire.

Up to the end of March of this year the Thunderbirds had flown 361 round trips on the airlift, and had chalked up more than 23,500 flying hours while covering just under four million statute miles. The four-engine North Star transports, powered by Merlin in-line engines, had lifted 817,391 pounds of mail and 3,521,376 pounds of freight over the Pacific, as well as 8,817 passengers, including many wounded flown on the eastbound trips.

The Thunderbirds gave promise of how they were to handle their duties on the airlift by the efficient way in which they started the job. They were at their home base at Dorval, P.Q., the big Department of Transport airport outside Montreal which serves as the terminus for trans-Atlantic airline flights between Canada and Europe, when orders came through for them to move to McChord Air Force Base, on the West Coast of the U.S., and begin the airlift job.

Within two days of receiving these orders the Thunderbirds, under Wing Commander "Cam" Mussells, D.S.O., D.F.C., who flew with the R.C.A.F.'s 405 Pathfinder Squadron during the Second World War, had moved "lock, stock and barrel" to McChord Field. They flew their North Stars out, taking with them their own ground crew and servicing equipment, for facilities for servicing their Rolls-Royce Merlins were lacking at the American base.

The next day saw the first North Star take off into the path of the setting sun, bound for Korea with urgently required supplies. Within an hour or two, two more North Stars had taken off, to commence a schedule that called for top efficiency from every air and ground crew member of the squadron.

The Thunderbirds set out to maintain a flight-a-day schedule, and they did it with a strength of six aircraft. This total was raised to eight, and then to

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Colonel W. W. Goss, Chief of Staff, U.S. Military Air Transport Service, presents a silk flag to Wing Commander J. K. Macdonald, Officer Commanding 426 Squadron, on the airlift anniversary

[*National Defence Photo: Canada.*

Flight Lieutenant F. E. Nelles, captain of North Star, and U.S.N. flight nurse, Ensign Betty Millsap, check the comfort of the wounded before leaving Haneda Airport, Tokyo

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twelve, to ease the pressure somewhat. This was during the early days of the airlift, when the situation in Korea called for a maximum effort to rush urgently needed supplies and equipment to the United Nations forces there.

Since then, requirements have been eased, and for a considerable time 426 has been running off fifteen round trips a month in place of the original one-a-day schedule. During the critical period the Thunderbirds' aircrew were logging as much as 160 hours a month through some of the dirtiest flying weather to be found anywhere. The initial route was by way of Anchorage, in Alaska; Shemya, in the Aleutians, and on to Haneda airport outside Tokyo, and was a gruelling battle with fog, snow, ice and headwinds. Initially the homeward flight was made by the same route, but this was later changed to allow familiarization with the southern routes, which included put-downs at such points as Iwo Jima, Wake Island and Honolulu. Today the Thunderbirds are again flying the northern route both ways.

When the squadron began its airlift operations, it moved as a unit to McChord, and operated out of there. Detachments of ground crew were flown out to various touchdown points, to enable speedy and expert servicing of the Merlin-powered North Stars. Such detachments are presently located at fog-shrouded Shemya and at Haneda. They have also been located at Adak, in the Aleutians, and at Honolulu, when the squadron was flying the southern route.

To get the maximum out of the aircraft a slip-crew system was used. On the basis that perfectly maintained and serviced, the North Stars could stand more than could their crews, the Thunderbird aircraft put down at Shemya or Adak where fresh crews took over as soon as refuelling was complete. The newly arrived crews had a quick meal and rolled into bed, to be ready to fly the next incoming North Star on to Japan, or back to McChord. This system, possible only through the exceptional performance of the North Stars and a 100 per cent. effort by ground crews, allowed 426 to roll up an impressive total of flying time. Ground servicing detachments originally served a six-week period at each point, moving on then to the next. Now, however, such detachments serve three-month periods at each point before moving on.

In June, 1951, two major changes were made. Wing Commander Mussells, who had led the squadron to the West Coast, left the Thunderbirds to take over as Senior Personnel Staff Officer at Air Transport Command Headquarters, Lachine, P.Q. He was replaced by Wing Commander J. K. McDonald, D.F.C., a war-time coastal command and bomber pilot. Shortly afterwards the Thunderbirds moved back to Dorval, outside Montreal. This shift was carried out for two reasons. The expansion programme of the U.S.A.F. at McChord required greater utilization of available space. Also, it was decided that with the critical supply period in Korea over, 426 could better handle its other duties, additional to the airlift operation, if based once again at Dorval. The movement back to its home base was made without disruption of the squadron's airlift commitments.

Since then 426 has been carrying out numerous other tasks in addition to continuing the airlift operation, on a schedule of fifteen flights a month to Japan. Thunderbird North Stars are carrying supplies to the R.C.A.F.'s No. 1 Fighter Wing, based at North Luffenham, England, and to Northern bases in Canada.

Each spring the Arctic bases of the R.C.A.F. and the Department of Transport are resupplied with provisions for the coming year; this is also the job of 426 Squadron. For two weeks the North Stars, working from Churchill, Man., and Goose Bay, Lab., shuttle supplies to the northern bases. Where landing

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strips are not available, the cargo is dropped by parachute. Flying in almost total darkness and with the coast lines blending with sea ice to form a sheet of whiteness, the job of finding the small detachments is often very tricky.

In addition, the Squadron is given many special assignments such as flying Red Cross food and clothing to the Po Valley flood victims or to the Hurricane survivors in Jamaica. At the same time, veteran squadron members are constantly training new crews in the intricacies of long-range transport flying.

Last year on the occasion of the Thunderbirds' first anniversary on the airlift, officials of the U.S. Military Air Transport Service, in whose service the Canadian squadron is flying the airlift, presented the Squadron with a silken ensign of M.A.T.S. and in return Wing Commander MacDonald turned over to M.A.T.S. a framed reproduction of the Squadron's Thunderbird insignia. The latter now hangs in the Officers' Mess at McChord.

No. 426 Squadron has a solid historical basis for the splendid post-war record it has established. It was a well-known war-time bomber squadron, a member of the R.C.A.F.'s No. 6 Bomber Group. From its base in Yorkshire the Squadron carried out numerous bombing operations over enemy territory and many of its personnel today wear Air Force decorations for their exploits. After the war, it was disbanded but re-formed at Dartmouth, N.S., as a transport squadron in July, 1946. Originally the Thunderbird Squadron was equipped with Dakotas but the switch to Canadian-built North Stars enabled it to carry out its many long-range transport assignments and, particularly, its role in the Korean airlift.

THE OCTOBER NUMBER

Among the articles in the October number of this Journal it is hoped to include:

DIVIDED RESPONSIBILITY, AIR POWER. By Air Marshal Sir Robert Saundby, K.B.E., C.B., M.C., D.F.C., A.F.C.

*EXPANSION OF THE FLYING TRAINING ORGANIZATION. By John W. R. Taylor.

*KNOW YOUR ALLY (an article on the Royal Turkish Air Force by a Senior Turkish Air Force Officer).)

IDEOLOGICAL DEFENCE. By Wing Commander E. Howell, O.B.E., D.F.C.

*LIFE ON A ROYAL NEW ZEALAND AIR FORCE STATION. By Flight Lieutenant Cummins, R.N.Z.A.F.

*KOREA—THE COUNTRY IN WHICH WE FIGHT. By Captain M. J. Uys, A.F.C., S.A.A.F.

*THE ROYAL AUSTRALIAN AIR FORCE COLLEGE (CADETS). Submitted by H.Q., R.A.A.F.

In addition, the usual series of "In Parliament," "Our Commonwealth Air Forces," "Current Events," "Promotions and Appointments," "Sport in the R.A.F.," "Book Reviews" and "List of New Books."

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* Illustrated.

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SOUTH AFRICAN AIR FORCE

REORGANIZATION OF S.A.A.F.

The reorganization of the South African Air Force, the reduction in the personnel of the General Headquarters Air Staff, and the fixing of the retiring age of artisan and administrative staff at 55 years, were announced by Lieutenant-General C. L. de Wet du Toit, Chief of the General Staff, after he had presented wings to seventeen pupil pilots at the Central Flying School, Dunnottar. General du Toit said it was economically unsound in a young country like South Africa to maintain a large permanent force. The Air Force especially was an expensive arm of the service. The major problem in the Air Force was that men could only be employed as fighter pilots for about ten years. This meant that a permanent career could be offered only to a small percentage of pilots. "I am pleased to say that after a close study of the problems of organization and age-grouping in the permanent 'cadre' of the South African Air Force during the past six months, an organization has been evolved which will ensure the young citizen reasonable opportunity to rise to the highest ranks if he has the necessary qualifications and qualities of leadership."

General du Toit added that the following organization of the South African Air Force had been agreed on:

1. Reduced air staff at General Headquarters mainly responsible for policy.
2. A flying training group responsible for carrying out the training of the S.A.A.F. in accordance with the policy laid down.
3. A maintenance group responsible for technical maintenance in all departments of the Air Force.
4. A maritime group comprising the maritime squadrons. This group will work in close co-operation with naval and marine coastal command.
5. A tactical group comprising the fighter and transport squadrons.

The regular section of the S.A.A.F. consisted of one transport squadron, three maritime squadrons and two fighter squadrons. "It is therefore obvious that we must rely to a great extent on our citizen forces and a very efficient and trained reserve to maintain a balanced and adequate Air Force. Our fighter formation squadrons rely on young pilots who are prepared to serve for a period in a short service commissioned capacity. For that purpose it is necessary that facilities be placed at the disposal of young men to enable them to serve without jeopardizing a regular career." General du Toit was pleased to say no difficulty had been experienced in getting the required number of candidates for the Air Force Gymnasium.

NEW ENSIGN FOR SOUTH AFRICAN NAVY

The new ensign is a dark green cross on a white background with the Union national flag in the upper canton next to the hoist.

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UNION DEFENCE FORCE STRENGTH

Replying to a question in the Assembly, the Minister of Defence, Mr. Erasmus, said the present strength of the Union Defence Force included: Permanent Force, 5,979; Active Citizen's Force, 22,345; Rifle Commandos, 77,198. The Minister could not give particulars on the strength of the A.C.F. reserve. He added that the Government was considering the appointment of a board to deal with the purchase of military equipment.

Referring to the South African Air Force, Mr. Erasmus said it consisted of fifteen squadrons. It had previously been divided into seven squadrons of the Permanent Force and eight of the Active Citizen Force. On recommendation of the Air Chief of Staff, Brigadier H. G. Willmott, it has new been divided into six Permanent Force and nine A.C.F. squadrons. Of the latter, six were at full strength and three would be at full strength towards June or July, the Minister said in conclusion.

NEW U.D.F. DECORATIONS AND MEDALS

Drawings and descriptions of the nine U.D.F. decorations and medals announced by the Defence Minister, Mr. F. C. Erasmus, as having recently been approved by H.M. The Queen, appeared in a special supplement to the official organ of the Department of Defence "Commando."

The highest award for valour, the Castle of Good Hope Decoration, two inches in diameter, takes precedence over every other decoration, order or medal. It is a five-pointed star representing the outline of the Castle of Good Hope surrounded by a moat.

For distinguished service in the field the Van Riebeeck Decoration, about one and a half inches in diameter, is made of silver and is in the shape of a five-pointed star representing the outline of the Castle of Good Hope.

For gallantry in action the Cross of Honour—a gold Maltese cross one and a half inches long.

For acts of the most conspicuous courage or the greatest heroism in circumstances of extreme danger in saving or endeavouring to save the lives of others on land, sea or in the air in peace and war, the Louw Wepener* Decoration is made of silver and is one and a half inches in diameter.

For meritorious service in peace and war, the Star of South Africa consists of a series of eight superimposed five-pointed stars of differing sizes in silver, rising to a thickness of $\frac{3}{8}$-inch in the centre. It is one and a half inches in diameter.

For members of the Active Citizen Force who have completed twenty years of voluntary service, the John Chard† Decoration is made of silver, is oblong, one and a half inches wide and two inches long.

For outstanding devotion to duty in peace or in war the Southern Cross Medal is made of silver and is circular, one and a half inches in diameter.

For members of the Permanent Force for long service and good conduct the Union Medal is made of silver and is circular, one and a half inches in diameter and evenly scalloped. The reverse of all the decorations and medals bears in relief the Royal cipher and the Union coat-of-arms.

For members of the Active Citizen Force who have completed twelve years' voluntary service in the U.D.F. there is the John Chard Medal. Members of the South African Forces would still be entitled to receive and wear British decorations such as the V.C. and D.S.O. The new South African decorations would supplement and not replace British decorations.

* Commandant Louw Wepener was a Voortrekker hero.

† Lieutenant John R. M. Chard won the Victoria Cross at Rorke's Drift in 1879.

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ROYAL CEYLON AIR FORCE

R.A.F. ASSISTANCE TO ROYAL CEYLON AIR FORCE

YOUNGEST of the Commonwealth Air Forces, having been brought into existence at the end of 1950, the Royal Ceylon Air Force consists at present of a cadre of eight officers and over 100 airmen, commanded by a senior R.A.F. officer, Air Commodore J. Cox, O.B.E., D.F.C., who is assisted by a small team of R.A.F. specialist officers and non-commissioned officers to supervise the various branches of initial training.

Included in the cadre are a number of officers and airmen who served either in the R.A.F. or the Indian Air Force during the war. Among them is Squadron Leader E. R. Amerasekera, D.F.C. and Bar, the Senior Air Staff Officer at Air Headquarters, who completed two operational tours with Bomber Command, and Flight Lieutenant M. G. Wijeyendran, the Headquarters Senior Secretarial Officer, who served in the Burma Campaign as a navigator/wireless operator, first with a Boston Squadron of the R.A.F. and later with the Indian Air Force.

Ultimately it is hoped that the Royal Ceylon Air Force will consist of a number of regular squadrons and one auxiliary squadron, equipped with jet fighter aircraft with the appropriate radio and radar aids.

The first intake of aircrew cadets was in November, 1951, and the cadets are proving themselves to be very promising potential pilots. They are being trained at Negombo, twenty-five miles north of Colombo, on Chipmunk basic trainers, and later it is hoped to give them advanced training. Increased numbers for flying training will be accepted when the requisite accommodation is ready.

Though the great majority of aircrew cadets will be trained in Ceylon, some will be sent at intervals for training at the R.A.F. College, Cranwell. Three have already been sent there. A number of aircraft apprentices have also been sent to England for three-year courses at the Radio School, Cranwell, and the Aircraft Apprentices' Technical School, Halton, as radio mechanics, instrument makers, engine fitters, electricians and riggers.

Basic ground training for airmen will be carried out at Diyatalawa, a hill station, 4,000 feet in the Central Highlands. A spacious camp previously occupied by the Army has been taken over and is being modernized to house the pupils.

The formation of a Ceylon Air Training Corps has also been approved, with flights at the larger schools throughout the island.

The Royal Ceylon Air Force will have its own ensign. It will be similar in design and colour to the Royal Air Force Ensign, with the National flag—a yellow emblematical lion on a maroon ground—superimposed on the top left-hand corner and in the bottom right-hand corner will be a roundel. The roundel will consist of two concentric circles, the inner red and the outer yellow, spanned on either side by a thick bar, the top half of which will be orange and the lower half green.

A RIVER TRIP IN CEYLON

Two Royal Air Force officers serving in Ceylon, Flying Officer D. G. Meyer, officer in charge of the Services Supply Depot, Colombo, and Flying Officer J. Hamill, of the R.A.F. Hospital, Negombo, recently spent an unusual eight days' leave. As sailing enthusiasts with considerable knowledge of British coastal and inland waters, they decided to see for themselves some of the lesser known parts of the interior of Ceylon by sailing up the ninety-mile Kelani Ganga, the

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principal river on the western side of the Island, as far as time, sailing conditions and other circumstances would permit.

They set out from the Royal Colombo Yacht Club in a gunter-rigged 14-foot R.N.S.A. dinghy called *Gremlin*, and in addition to food and blankets they carried a tent to cover the well of the boat at night as a protection from the nocturnal insect life.

The undertaking proved more difficult than was anticipated. Not long after the start it became evident that the conditions were such that sails were of little use and that the journey could only be done in the way the native watermen did it—by poling, where the water was deep enough, and by getting into the water and pushing the boat where the water shallowed and the current became more rapid. At first, paddles were tried, but without much success, and on the second day a bamboo tree was felled and its stem used as a pole.

At the end of the second day, the two holiday-makers had arrived at the village of Kelaniya, well known for its sacred temple, where they were extremely well received by the inhabitants, whose curiosity was almost as great as their generosity with gifts of fruit, for seldom if ever before had European visitors come into their midst in such a manner.

By dint of much exertion the two travellers had got as far as the village of Hanwella—a total distance of forty-five miles—by the end of the fifth day. They were fortunate to find an up-to-date rest house, where they spent the night. On the following morning they started on their homeward journey, which was accomplished with comparative ease in two days.

NIGHT ASCENT OF 7,360-FOOT ADAM'S PEAK

Like most Far East Air Force stations, Negombo, set amid palm-tree plantations twenty-five miles north of Colombo, Ceylon, has its Jungle Rescue Team.

Manned by officers and airmen of all branches and trades—every one a volunteer—who not only have to pass prescribed physical fitness tests on entry, but to turn out once a week for a fifteen-mile route march through swamp and jungle, fording fast-flowing rivers and skirting paddy fields knee-deep in mud, the team is ready at all times to go anywhere in the island in search of an aircraft that may have crashed or force-landed and to carry aid and medical supplies to crew and passengers.

To maintain the team's efficiency, special monthly exercises are held, officers and airmen moving under as realistic conditions as possible through areas of jungle, forest or swamp, map-reading their way to some pin-pointed rendezvous.

Recently their endurance and stamina were tested to the full when three officers and twelve airmen made a night ascent of the 7,360-foot high Adam's Peak, a noted rock formation in South-West Ceylon, on the summit of which is a Buddhist temple visited annually by large numbers of pilgrims.

Leaving Negombo in the afternoon the team went by road to the terminus of the Pilgrim road some 4,000 feet above sea-level and eight miles from the Peak, arriving there after dark. Each member carried in addition to his jungle outfit and accoutrements some sixty pounds of jungle survival packs or first-aid outfits and some carried arms against a chance encounter with wild animals.

The first stage of the ascent involved a distance of about five and a half miles and a rise of 1,000 feet to the first stopping-place. This took a little over two hours, and after resting for half an hour the team started on the second lap to reach the base of the Peak.

On this stage the going was extremely difficult. The track had narrowed considerably, so that the team could only move in file, and it lay across steep

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hillsides with a sheer drop of 1,000 feet or more below. The gradients had become extremely severe and a good deal of clambering over slippery rock had to be done. The actual distance was not great, but it was a hot and fully extended team that arrived at their second halting place an hour later.

Strenuous as the going had been on the second stage, it was simple by comparison with the conditions encountered on the final lap to the summit. This involved a rise of over 2,000 feet. For a short distance the track led through forest area and afterwards along a narrower winding path which in unevenly graded steps first lay diagonally across the rock formation and then rose almost vertically to the top of the Peak, which was reached just as dawn was breaking.

The final lap had taken two hours and twenty minutes. The rise in altitude of almost 3,000 feet was exhausting, and long before the summit was reached the team was showing signs of fatigue, more and more stops having to be made for rest. The entire ascent had occupied more than six hours.

ROYAL NEW ZEALAND AIR FORCE

BY FLIGHT LIEUTENANT G. BENTLEY, R.N.Z.A.F.

R.N.Z.A.F. FIGHTER SQUADRON TO SERVE IN MIDDLE EAST

A FIGHTER squadron of the Royal New Zealand Air Force is to be sent to the Middle East, probably in September, to serve alongside squadrons of the Royal Air Force and other Commonwealth units.

No. 14 (Fighter) Squadron of the Regular Air Force has been chosen for this duty. It is equipped with de Havilland Vampires, the first jet aircraft to go into service with the R.N.Z.A.F.

The squadron's location in the Middle East has not been decided, and will be settled by consultation between the United Kingdom and New Zealand authorities.

It is not intended that No. 14 Squadron should take its own aircraft to the overseas theatre. When he announced the move recently, the Prime Minister of New Zealand (Mr. S. G. Holland) said the squadron would be re-equipped with Vampires on its arrival in the Middle East.

No. 14 Squadron is one of the oldest and best-known war-time squadrons of the R.N.Z.A.F. to serve in the Pacific theatre. It was the first fighter squadron formed in New Zealand after the outbreak of war with Japan and it served with conspicuous success in the Pacific war. After the war it was re-formed and sent to Japan for a two-year tour of duty with the British Commonwealth Occupation Force.

With the arrival in New Zealand of the first jet aircraft last year, the squadron was re-formed and became the first Vampire squadron of the Regular Air Force. It is commanded at present by Squadron Leader S. M. Hope, M.B.E.,

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who saw service in the Pacific as a fighter pilot and later served with No. 14 Squadron in Japan. He is 31 years of age.

NEW JET SQUADRONS

The Vampire aircraft in New Zealand will then be used for the re-equipment of No. 75 Squadron, which since the war has been operating with Mosquito aircraft, and for the conversion training of squadrons of the Territorial Air Force.

[R.N.Z.A.F. Photo.

Squadron Leader S. M. Hope, M.B.E., Officer Commanding No. 14 Squadron, R.N.Z.A.F., which is going to M.E.A.F. in September, 1952

With ground staff, the Middle East squadron will have an establishment of about 200. It is expected to be transported overseas in the new Hastings aircraft recently purchased in the United Kingdom for No. 41 (Transport) Squadron of the R.N.Z.A.F.

Arrangements for a R.N.Z.A.F. Squadron to serve in a garrison role in the Middle East were made in consultation with the United Kingdom Government. Preliminary discussions were held at the 1951 meeting of Commonwealth Defence Ministers in London, when New Zealand was represented by the Hon. T. L. Macdonald.

The decision to send a New Zealand unit to the Middle East theatre marks an important advance in the development of this Dominion's defence policy. The Middle East is a vital defensive perimeter of this country and any serious reversal of the security situation there would be fraught with grave consequences here. Just as New Zealand's K-Force, fighting as part of the United Nations Army in Korea against Communist aggression, is acting as part of our national defence, so No. 14 Squadron in the Middle East will be taking its place in a defensive line the maintenance of which means security at home.

As the squadron is to be re-equipped with new Vampires on arrival, there will be no depletion of the jet aircraft available for training in New Zealand. The removal from training establishments of trained personnel will, however, create a vacuum that must be filled, and the Minister of Defence (Mr. Macdonald) has been quick to emphasize this need. A considerable increase in the rate of recruiting will be necessary to fill the gap.

SUNDERLAND AIRCRAFT FOR R.N.Z.A.F.

Negotiations with the Air Ministry are proceeding for the Royal New Zealand Air Force to take over between twelve and sixteen Sunderland flying-boats from the Royal Air Force.

It is understood that all the aircraft have been in service with the R.A.F. and will need reconditioning. This work is to be done by the makers, Shortt and

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Harland, in Belfast, and it is believed that they may not receive the first Sunderland until about August. Providing certain radio equipment is available, it might then be possible for the first delivery flight to New Zealand to start about October.

It is understood that the remainder of the Sunderlands will be delivered after reconditioning over a period of six to nine months.

It is presumed that crews will be sent from New Zealand to fly them out.

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Hurricane damage to a R.N.Z.A.F. flying-boat station in Fiji Islands

HURRICANE STRIKES R.N.Z.A.F. STATION

A severe hurricane caused considerable damage recently at the R.N.Z.A.F. Station, Lauthala Bay, in the Fiji group of the Pacific Islands. The flying-boats located there were saved by prompt action to evacuate them to New Zealand immediately the hurricane warning was received. Among other buildings on the island the main hangar, station houses, barracks, stores and recreation rooms were severely damaged. From the cheery smiles on the faces of the New Zealand airmen in the picture, the rebuilding of their accommodation after a hurricane is only one more of the variety of jobs in the ups and downs of an airman's life.

CRANWELL HONOUR FOR NEW ZEALAND CADET

The Sword of Honour at the Royal Air Force College at Cranwell was won by Pilot Officer R. Parfitt, of Westport, New Zealand. Pilot Officer Parfitt was one of the first Cranwell cadets to receive the Queen's Commission. The Sword of Honour was presented to him on Graduation Day by Lord De L'Isle and Dudley, Secretary of State for Air.

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[Australian Air Department Photo.

These two figured prominently in the special attack which tried and proved the now famous "Flaming Onion" rocket which was invented by an officer of No. 77 R.A.A.F. Squadron in Korea. On the right is the Squadron's Commanding Officer, Wing Commander R. Susans, D.F.C., who delivered the rocket to the Communists. On the left is Major Ruffin Gray, of Mineral Springs, Texas, U.S.A., who flew in the spotting aircraft and brought back an eyewitness account of the rocket's burning success

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ROYAL AUSTRALIAN AIR FORCE

THE R.A.A.F. IN KOREA

WHEN the Korean War began on 30th June, 1950, the Royal Australian Air Force's original commitment of a fighter wing component in the British Commonwealth Occupation Force had been reduced to a single squadron No. 77. Within a week of the North Korean invasion, No. 77's Mustangs were operating from Japan on strikes into Korea. That squadron was the first unit of any nation to help the Americans and South Koreans, whether on land or sea or in the air. Australia is (and properly) proud of that distinction, for it is the R.A.A.F.'s honour to be first. No. 1 Squadron of the Australian Flying Corps was the first squadron sent by any Dominion into battle overseas (1916 to Egypt). No. 10 Squadron's Sunderlands were the first non-R.A.F. aircraft to enter the 1939 war.

In Korea today the R.A.A.F. has No. 91 Wing at Iwakuni, Japan, as an administrative unit, commanded by Group Captain A. G. Carr, A.F.C.; No. 77 Squadron, flying Meteors in the U.S. Fifth Air Force's Fourth Fighter-Interceptor Wing (C.O., Wing Commander R. T. Susans, D.F.C.); No. 30 Transport Unit, operating nine Dakotas from Iwakuni to Korea; No. 391 Base Squadron; and No. 491 Maintenance Squadron. The link between the R.A.A.F. and the American airmen and infantry established in the South-West Pacific in 1941-45 has been renewed, for No. 77 is operationally controlled by its old Pacific friend, the U.S. Fifth Air Force, and in the early days of the Korean War it supported the U.S. 1st Cavalry and 1st Marine Divisions which it had supported in 1943-44 in the Admiralties and New Britain.

Before the shooting war started in 1950, the U.S. Far East Air Force had regarded the F80 as its main fighter. In action, however, the F80's just did not have the range to operate from Japan in the absence of sufficient bases in South Korea. The U.S.A.F. had to fall back on 1945 types, including the "obsolete" Mustang F51, and the old B26. Three American fighter-groups, including the 35th, to which No. 77 was sent, were rearmed with Mustangs.

The main role for the first period of No. 77's Korean War was in support of ground forces, though in the very early days the Mustangs provided fighter escort for B29 and B26 formations. This became unnecessary when the North Korean air force was wiped out and the squadron went over entirely to ground support and armed reconnaissance. The work done may be understood when figures are given—2,000 sorties by November, 1950, and 1,745 hours flying in August alone.

The first C.O., Wing Commander L. T. Spence, D.F.C., was killed in September, 1950, and was, curiously, succeeded by the officer who had originally

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[*Australian Air Department Photo.*

R.A.A.F. pilots of No. 77 Squadron in Korea are now using a new weapon developed by one of their fellow officers. Nicknamed the "Flaming Onion," the weapon is a rocket with the normal high-explosive head replaced by one filled with Napalm. Tested in operations against the Communists, it proved extremely effective. Shown here is the Armament Officer of 77 Squadron, Flight Lieutenant John Smith, of Newlambton Heights, Newcastle. He developed the rocket from suggestions from pilots of No. 77

[*Australian Air Department Photo.*

Commanding Officer of No. 77 R.A.A.F. Squadron in Korea, **Wing Commander** *Ronald Susans, D.F.C., received the American Air Medal from* **Colonel Harrison** *R. Thyng, C.O. United States Fifth Air Force Fighter* **Wing**

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formed the unit in Australia in 1942, Squadron Leader R. C. Cresswell.

In October, 1951, the squadron moved to Korea, its equipment and ground staff being transported by three Dakotas which developed later into the present No. 30 Transport Unit. These Dakotas then began their present task of supplying food, reinforcements, clothing, etc., to the British Commonwealth Brigade and later Division in Korea, evacuating wounded on the return trip. Every British Commonwealth wounded soldier flies to Japan in a R.A.A.F. Dakota, together with Turks, Filipinos, Belgians, Americans, and all the other nationalities. R.A.A.F. nursing sisters escort these wounded from Korea, and British wounded go to the R.A.A.F. hospital in Japan before R.A.F. Hastings take them south.

When the squadron was withdrawn from Korea for re-equipment with Gloster Meteor Mark 8's in April, 1951, No. 77's Mustangs had a very impressive score that spoke very well for R.A.A.F. maintenance and R.A.A.F. flying.

There can be no secret made of the fact that the R.A.A.F. would have liked F86's for No. 77 Squadron, but these were not available, and the Meteor was the second-best jet fighter the United Nations had to offer in early 1951. As no other Meteors were being used on active service anywhere else in the world, No. 77's experience must be regarded as important.

When the squadron returned to Korea in July, 1951, it was soon obvious that the Russian-built MIG-15 had as much performance advantage over the Meteor as it had over the U.S.A.F.'s F84. The Meteor could and did, shoot down a MIG-15 (F84's and even F80's have, too), but the Chinese had the basic advantage of being able to take off and reach operational altitude on their own side of the Yalu River in Manchuria, while the U.N. jets had to fly several hundreds of miles from South Korea bases. In the New Year of 1952, No. 77 was given the dual task of maintaining day-long patrols and of rocket and gun attacks on ground targets. The original role of fighter sweeps along MIG Alley near the Yalu was abandoned to the more suitably equipped F86's.

Possibly one of the smallest air units operating in Korea, No. 77 Squadron is flying more sorties per day than any other unit participating in the theatre. In its dual role of ground-attack and air-defence-by-standing-patrol, the squadron's English-built Meteor jets are in the air from dawn to dusk, proving their versatility in both roles.

The inclusion of ground attack duties in the squadron's previous role of fighter interception was accompanied by much hard work, but pilots and groundstaff welcomed the change. Immediately following the cessation of fighter sweeps, No. 77 Squadron was assigned the air defence of the area in which it was stationed. This was a period of trial for all members because it entailed long periods of inactivity waiting for Communist aircraft to venture into the area.

The change in role of the squadron was achieved as a result of direct representations to Lieutenant-General Everest, Commanding General of the United States Fifth Air Force, by Wing Commander R. T. Susans, D.F.C., Commanding Officer of No. 77 Squadron. General Everest, when asked to assign the pilots a more active role in the aerial warfare, told Wing Commander Susans, "I am on the side of any man who wants to do a bit of honest killing."

The squadron has been continually breaking its record for the number of sorties in each month since it took over ground attack duties. In January it flew more than 700 sorties, entailing the flying of more than 1,100 hours. The total was again topped in February with 1,005 sorties and 1,150 hours.

Heartened by the success of the new role, pilots led by Wing Commander Susans, of Melbourne, voluntarily set themselves the target of one thousand

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sorties for the month. Despite adverse weather interrupting flying on three whole days pilots flew a "maximum effort" to reach the desired total.

However hard and often they fly, none of the pilots wish a return to the former static role held previously, as they can now see direct results of their missions against the enemy.

The Australian unit is attached to the American Fourth Fighter Wing for its operations. As a result of the activity of daylight fighter bombers and fighter sweeps, motorized and rail transport in North Korea has been forced to travel by night and attacking pilots now seldom see anything moving below them.

With the assumption of the ground attacking role the enthusiasm of the entire unit soared. Aircraft had to be fitted with rocket-carrying equipment and aircrews had to be given a refresher course on ground attack tactics, for although most pilots had previous experience in ground attack they had not carried out such attacks for some time. This was done with a minimum of delay and now all pilots arriving as replacements for the squadron are trained in Japan before joining the unit in Korea. Although none of the pilots had previously fired rocket projectiles from the Meteor jets, their record of destruction has been highly satisfactory, as they quickly accustomed themselves to the new techniques required.

In addition to rocket and strafing missions against selected targets, the squadron is maintaining a constant daylight patrol north of the bombline in Korea. These patrols enable earlier cover than could be given from aircraft being alerted from the ground to be given to pilots shot down behind enemy lines. With the Meteors in the area they are quickly directed to the downed aircraft and provide cover for rescue aircraft if needed to take the pilot out.

While on patrol pilots report and investigate aircraft flying north of the patrol line. To continue this patrol means that two aircraft are kept aloft throughout the day. Relieved at regular intervals, the aircraft are refuelled and checked by ground staff as soon as they land so they are ready to scramble instantly in the event of an emergency.

The British-built Meteor 8 jet now being used by No. 77 Squadron has proved to be suited to ground attack. Being twin-engined it can fly on one engine, and has proved it can limp back to base after being damaged. Pilots are thus able to reach base or at least cross the lines into friendly territory.

In making the low-level rocket and strafing attacks the Meteors are exposed to more light weapons' anti-aircraft fire than they were previously. They often return bearing mute testimony of the enemy's fire. Most of the damage, however, is of minor nature, and airframe mechanics work long hours to ensure that the planes are again serviceable within the shortest possible time. With freezing winds, snow and ice, it is hard for the men to work on the aircraft at the advanced air base, so all major repairs are affected at the R.A.A.F.'s base at Iwakuni, Japan. The jets are flown to the aerodrome there, where the maintenance squadron has full facilities for all classes of work at its disposal.

The ground staff working in Korea under bleak winter conditions and often slipping through snow, and mud when the snow thaws, have felt the strain of the increased flying of the new role. Keenly interested in the squadron's results, they take pride in the effectiveness of the strikes and there is a general feeling of "the job is worthwhile" pervading the entire unit.

The armament section, responsible for the arming of the jets, has been called on to provide tons of ammunition for the attacks. The section is extremely proud that its record of stoppages through mechanical causes in the 20-mm.

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[Australian Air Dept. Photo.

An armourer of 77 R.A.A.F. Squadron loading a belt of unpleasant surprises for the Communists in North Korea

cannons is exceptionally low, despite the sub-zero weather the attacks are made in. All the armourers in the squadron are keenly interested in maintaining that record and take special care of the guns, rockets and ammunition.

The vast amount of ammunition showered on the Communist positions is indicated by more than 1,000 rockets and 45,000 rounds of 20-mm. cannon shells were used in January. The total for February is even greater.

The rocket used by No. 77 Squadron is the standard missile which was used by Commonwealth Air Forces during World War II. With its terrific velocity the missile can be aimed with great accuracy, and the Squadron has succeeded in destroying the pinpoint targets assigned it with minimum expenditure of aircraft and armament. With a high standard of accuracy achieved in rocketry the squadron guarantees to score several hits on a target in one attack, and in many cases has destroyed it in one attack.

After the rocket attacks strafing runs are sometimes made over the targets and the 20-mm. cannon shells add to the damage and fires caused by the high explosive of the rockets.

When returning from rocketing missions the jets sweep down at low-level over enemy territory seeking concentration of troops and transports. Often the fast-flying Meteors catch Communist troops in the open and add to the trail of death and destruction which United Nations aircraft are causing the enemy in North Korea.

No. 77 Squadron is using a new and deadly rocket, which has been evolved by R.A.A.F. technicians. It is the Napalm rocket, which was first used on 8th February by four Meteors against a group of supply buildings at Chaeryong, in North Korea. The Commanding Officer of the U.S. 15th Squadron, who accompanied the men in an R.F.80 to photograph results, brought back proof of the effectiveness of the fire-producing characteristics of the "Flaming Onion." It is estimated that over 75 per cent. of the Napalm rockets recorded direct hits, and such is the advantage of Napalm weapons that even the undershoots and overshoots make complete devastation to large areas around the target.

The credit for the development of this rocket projectile goes to the Squadron Armament Officer, Flight-Lieutenant John C. Smith, of New South Wales. The idea arose as the result of reports from pilots returning from Korea that the Napalm bomb had certain limitations. It was suggested that a more accurate and safer method be devised to deliver Napalm. Smith conceived the idea of propelling a Napalm head by means of a rocket motor. Eighteen months ago

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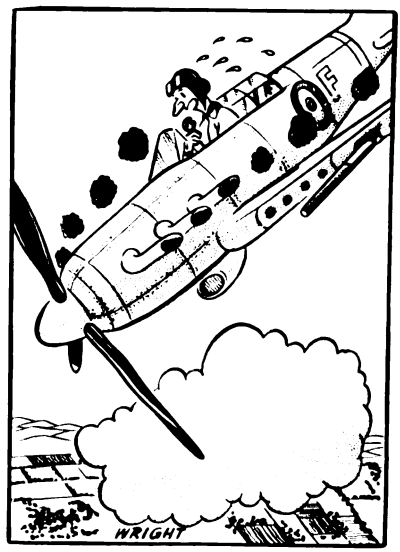
the first test was effected at Williamtown, N.S.W., with such encouraging results that the weapon was operationally tested in Meteors in Japan. Further supplies of the weapon were constructed by R.A.A.F. ground staff in Japan. So today Australian pilots are using a new weapon devised and manufactured by their fellow countrymen.

Types of targets assigned the squadron include storage and barrack buildings, camouflaged revetments, anti-aircraft gunposts, general gun positions, ship-building yards, and productive mines. Other targets often sought and destroyed are locomotive sheds, refuelling points, boxcars, carriages, and general railway installations.

In an area of unified action by men from many countries the work and achievements of the small band of Australians has earned high praise and personal esteem from members of all forces. At the advanced air base from which the Meteors operate are American fighter light bomber and reconnaissance units. Many friendships have been formed between the Australian and American men. The work of the Australians has been officially recognized by the United States Government by awards made to the men. The President of the Republic of South Korea, Syngman Rhee, recently awarded the squadron a Unit Presidential citation. The American Air Medal is being awarded to the Australian pilots individually in recognition of their services in support of sustained action by United Nations forces. The medal is being worn with pride by the men.

So in the latest theatre of war the proud traditions of the R.A.A.F. are being upheld and enhanced by the work, courage, and unstinting duty of all members of the aircrew and ground staff of No. 77 Squadron "somewhere in Korea."



"Instructor, Instructor, what do I do now?—the fan's stopped!"

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LETTERS TO THE EDITOR

The Editor, THE ROYAL AIR FORCE QUARTERLY.

DEAR SIR,

General Martel's theory of armoured mobile warfare is attractive and the validity of his comments in the last R.A.F. QUARTERLY gains support from the particular circumstances in France in 1940, later in Russia and later still in North-West Europe. The kaleidoscopic pattern of interdependent factors is now as always changing, for instance, the relationship between armour and anti-tank weapons of all kinds, the weight of an adequately armoured tank and its mobility, the vulnerability of its supporting echelons to air attack either directly by the destruction of refuellers or indirectly by blocking the roads and bridges they must use, etc. It is no doubt such factors that convince General Martel that a condition of these offensive operations, as with all operations by land, sea and air, is a considerable degree of air superiority.

Similarly the patterns in the aerial kaleidoscope are also changing. The power of the offensive tends to increase with the sharpening time and expanding space factors affecting aircraft, and with the greater power of air weapons. The emphasis in the battle for air superiority will correspondingly shift to the counter-offensive, until it may become the only feasible action against long-range rockets that cannot be intercepted by missile or beam, etc., as all airmen know.

These factors will tend to give the ultimate victor of the air battle a more and more decisive advantage, and this will lead to a corresponding intensification of the air battle—which to the soldier will probably appear as a diversion of air effort from the land battle. And despite the speed and violence of the air war it may, paradoxically enough, take longer in future to establish a sufficient degree of air superiority to provide effective cover for such operations as air-borne or amphibious assaults, in-shore carrier operations, and the movement of tanks with their vulnerable terrestrial or aerial tails.

Air superiority will make most operations practicable but the more dependent any form of weapon or warfare on air superiority, the greater liability it will tend to become during the critical period before the necessary air superiority can be established. Therefore the really critical problem at the beginning of a war is how to secure the territorial frontiers guarding the industrial and operational bases of the democratic states until an effective measure of air superiority can also be won, first to ensure their survival, and secondly to cover whatever offensive operations may later be necessary to clinch victory. It might, for instance, be argued that a nation without air superiority would be wise to adopt the most invulnerable form of army—perhaps an infantry army—preferably at Asiatic scales of supply. For certainly the nation with a powerful air force and an invulnerable army is doubly secure on the ground. Correspondingly a nation with a comparatively small air force and a highly vulnerable army is doubly insecure. Herein lies the enigma that faces us in Europe.

May I therefore ask how these tanks would best be used before adequate air superiority can be established to cover their mobile operations, and whether it would not be wiser to keep a preponderance of infantry divisions available until the air battle turns in our favour?

I am, sir,

Yours truly,

J. R. GORDON-FINLAYSON, *Group Captain.*

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[Air Ministry photo.

THE FUTURE CHIEF OF THE AIR STAFF

Air Chief Marshal Sir William F. Dickson, K.C.B., K.B.E., D.S.O., A.F.C., Air Member for Supplies and Organization, who on 1st January, 1953, is being appointed Chief of the Air Staff

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CONCERNING PERSONNEL

THE CHIEF OF THE AIR STAFF TO RETIRE

An informal picture of Sir John Slessor which was taken with his old friend Lieutenant-General I. C. Eaker during the Second World War

MARSHAL of the R.A.F. Sir John C. Slessor, G.C.B., D.S.O., M.C., is relinquishing his appointment as Chief of the Air Staff on 1st January, 1953.

Always a successful leader, nobody has more successfully personified the fighting spirit of the Royal Air Force than has Jack Slessor, as he is popularly known throughout the three Services.

From March, 1945, until 1947, when he replaced General Sir William Slim as Commandant of the Imperial Defence College, Sir John Slessor, as Air Member for Personnel, handled successfully the essential task of diminishing the R.A.F. from its war strength of over a million to a peace strength of some 300,000.

On appointment as Chief of the Air Staff in 1951, the international situation had changed, necessitating his meeting the pressing need for the immediate expansion of the Royal Air Force. The complexity of this task and the innumerable difficulties to be overcome must have laid a heavy burden upon him continuously throughout his tour as the guiding brain of our first line of defence.

When he retires in January, 1953, the good wishes of the whole Service, for which he has done so much, will go out to him. We should also like to take this opportunity of expressing our gratitude to Sir John Slessor for his encouragement, interest and never-failing support of this Journal.

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NEW APPOINTMENTS

Among the promotions and appointments announced by the Air Ministry since the issue of the April, 1952, number of the Journal are the following:

AIR MINISTRY

Air Chief Marshal Sir John Baker, K.C.B., M.C., D.F.C., as Vice-Chief of the Air Staff, in November, 1952.

Air Marshal Sir Ronald Ivelaw-Chapman, K.B.E., C.B., D.F.C., A.F.C., as Deputy Chief of the Air Staff, in November, 1952.

Air Vice-Marshal Sir Harry Broadhurst, K.B.E., C.B., D.S.O., D.F.C., A.F.C., as Assistant Chief of the Air Staff (Operations).

Air Vice-Marshal F. J. Fressanges, C.B., as Assistant Chief of the Air Staff (Intelligence).

Air Vice-Marshal C. E. H. Allen, C.B., D.F.C., B.A., M.I.Mech.E., as Director-General of Technical Services.

Air Vice-Marshal C. N. H. Bilney, C.B., C.B.E., as Vice-President of the Ordnance Board, Ministry of Supply.

Air Vice-Marshal N. S. Allinson, C.B., as Director-General of Personnel (1).

Air Commodore J. L. F. Fuller-Good, C.B.E., as Director of Personal Services (A.).

Air Commodore C. J. Nobbs as Director of Equipment (C.).

Air Commodore J. N. T. Stephenson as Director of Organization (Forecasting and Planning).

Air Commodore F. W. Felgate, C.B.E., as Director of Movements.

Air Commodore H. R. Graham, D.S.O., D.F.C., as Director, Navigation and Control.

Mr. Anthony Barber, M.P., as Parliamentary Private Secretary to the Under-Secretary of State for Air (Mr. George Ward).

MAINTENANCE COMMAND

Air Commodore W. F. Langdon, C.B.E., as Senior Air Staff Officer, No. 41 Group.

FAR EAST

Air Marshal A. C. Sanderson, C.B., C.B.E., D.F.C., as Commander-in-Chief, Far East Air Force. (Instead of Air Marshal Sir Thomas Williams, K.C.B., O.B.E., M.C., D.F.C., as notified in the April number of this Journal, whose appointment has been cancelled because of ill-health.)

Air Commodore W. M. L. MacDonald, C.B.E., D.F.C., as Base Commander of the R.A.F. Base at Seletar, Singapore.

MIDDLE EAST AIR FORCE

Air Commodore M. S. Shapcott, as Air Officer Commanding No. 206 Group.

SECOND TACTICAL AIR FORCE

Air Commodore J. H. Edwardes-Jones, C.B.E., D.F.C., A.F.C., A.D.C., as Senior Air Staff Officer.

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HONOURS AND AWARDS

Among recent announcements of Honours and Awards were the following:

H.M. THE QUEEN'S BIRTHDAY HONOURS

K.C.B. (MIL.)

Air Marshal Sir Hugh Walmsley.
Acting Air Marshal J. D. I. Hardman.

C.B. (MIL.)

Acting Air Marshal J. MacC. Kilpatrick.
Air Vice-Marshal H. L. Patch.
Acting Air Vice-Marshal L. Dalton-Morris.
Air Commodores B. E. Essex, G. S. Shaw and M. Watson.
Acting Air Commodore A. D. Selway.
Group Captains L. S. Snaith and D. M. T. MacDonald.

K.B.E. (MIL.)

Air Vice-Marshal R. A. George.

C.B.E. (MIL.)

Acting Air Vice-Marshal C. MacC. Vincent.
Air Commodores F. W. P. Dixon and B. D. Nicholas.
Acting Air Commodore H. H. Chapman.
Group Captains W. R. Brotherhood, D. Finlay, R. L. Kippenberger, E. C. Passmore, C. Scragg and C. M. Stewart.

O.B.E.

Wing Commanders A. J. Barwood, A. A. Baxter, E. H. Lynch-Bloss, E. O. Budd, S. Conway, J. R. Fraser, G. V. Fryer, D. H. M. Graham, A. W. Heward, A. H. C. Roberts, G. E. Tweedie, P. E. Warcup, C. M. Williams and J. Woods.
Acting Wing Commanders L. F. Jennings and I. S. Smith.
Squadron Leaders K. C. Giddings and D. D. McSwein.

MALAYAN AWARDS

Distinguished Service Order
Squadron Leader George Cecil Unwin, D.F.M.

Order of the British Empire
Wing Commander Thomas Gray Young.

Member of the British Empire
Flight Lieutenant William Arthur Land, A.F.C.

Distinguished Flying Cross
Flight Lieutenant Samuel Mills, R.N.Z.A.F.
Major David Pigot Deare Oldman, Royal Regiment of Artillery.

Distinguished Flying Medal
3002095 Sergeant Maurice Archibald Clarke.

Military Medal
4031688 Acting Flight Sergeant Leslie Charles Ewart Harris, R.A.F.

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Air Force Medal

570948 Sergeant Jack Christopher Bowman.

British Empire Medal

634429 Flight Sergeant William James Peter Mearns.

Korean Awards

Distinguished Flying Cross

Squadron Leader James Michael Helme, A.F.C.
Flight Lieutenant Timothy Allman Bridge.
Captain Leslie Richard Bagnall Addington, Royal Regiment of Artillery.
Flight Lieutenant Cornelius Desmond Murphy, R.A.A.F.
Flight Lieutenant Ralph Leslie Dawson, R.A.A.F.
Warrant Officer Robert Charles Hunt, R.A.A.F.

Air Force Cross

Squadron Leader John Ewen Gerber, R.A.A.F.

Distinguished Flying Medal

Flight Sergeant John Holt Taylor, R.A.F.
Sergeant James William Hutchings, King's Royal Rifle Corps.
Flight Sergeant Keith Raymond Meggs, R.A.A.F.
Flight Sergeant Henry William Bessell, R.A.A.F.

RETIREMENT

Air Chief Marshal the Hon. Sir Ralph Cochrane, G.B.E., K.C.B., A.F.C., on 1st November, 1952.

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CURRENT EVENTS

Gliding Three Feet Up—Air Wars Won on Playing Fields

Boys at about sixty schools in Britain will soon be able to take lessons in gliding by sitting in a trainer which hovers continuously three feet above their grass playing-fields.

The trainer can be built by the boys themselves by mounting a glider on a special steel tubular 7-ft. high tripod. At the apex of the tripod is a ball-joint: the glider balances on this so that it can swing about through 30 degrees in any direction. The glider and the tripod is then turned to face the wind. With only a light breeze blowing over its surfaces, the glider's controls become effective, and a would-be glider pilot can learn how to use the stick and rudder with only three feet of air beneath him.

When the boys have got the feel of the controls of the trainer, the glider can be taken off the tripod and launched inside the playing-field by a winch or a shock cord—a kind of rubber catapult. The glider is not intended for any long distance or high-altitude soaring, but for gentle, easy manœuvres over the field about 40 to 50 feet up.

Freedom of Coventry for No. 605 (County of Warwick) Squadron, R.Aux.A.F.

The "Freedom of Entry" of the City of Coventry has been conferred upon No. 605 (County of Warwick) Squadron, Royal Auxiliary Air Force. The presentation of the Deed of Entry to the Honorary Air Commodore, Air Commodore J. A. Cecil Wright, was made by the Mayor of Coventry, Councillor Harry Weston, on Saturday, 3rd May.

After the presentation the Squadron marched through the city preceded by the Central Band of the Royal Air Force and the Mayor took the salute at the Council House. Also in the parade were contingents of the Royal Air Force from R.A.F. Station, Honiley; No. 3605 Fighter Control Unit, Royal Auxiliary Air Force; No. 2605 (County of Warwick) L.A.A. Squadron, Royal Auxiliary Air Force; the Air Training Corps and former members of the Squadron. When the parade passed the saluting base, R.Aux.A.F. pilots of No. 504 (County of Nottingham) and No. 613 (City of Manchester) Squadrons flew past in Meteor fighters.

To mark the occasion the City presented the Squadron with a silver challenge bowl and five pewter tankards, engraved with the City Coat of Arms and the Squadron badge, for competition among members of the Squadron.

The ceremony was attended by the Lord Lieutenant of Warwickshire, Lord Willoughby de Broke (a former Squadron Commander), the Secretary of State for Air, Lord De L'Isle and Dudley, the Air Officer Commanding-in-Chief, Fighter Command, Air Marshal Sir Basil Embry, the High Sheriff, Sir Arthur Salt, and other civic dignitaries, the Air Officer Commanding No. 12 (Fighter) Group, Air Vice-Marshal R. L. R. Atcherley, the Director of Auxiliaries, Reserves and Air Cadets at Air Ministry, Air Vice-Marshal W. M. Yool, and the Inspector of the Royal Auxiliary Air Force, Group Captain J. M. Birkin.

On Sunday, 4th May, a civic service was held in the ruins of Coventry Cathedral at which the Deed of Privilege was dedicated.

Only one other Service unit—the Royal Warwickshire Regiment—holds the Freedom of Entry of Coventry, which enables the recipients to march through the city with "drums beating, colours flying and bayonets fixed."

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[*National Defence Photo: Canada*

MARSHAL OF THE ROYAL AIR FORCE THE VISCOUNT TRENCHARD VISITS THE R.C.A.F.

The Marshal of the Royal Air Force and Lady Trenchard were met on their arrival in Canada by Air Vice-Marshal F. R. Miller, Vice-Chief of the Air Staff (R.C.A.F.), on right of picture, and Air Commodore A. P. Revington, R.A.F. Senior Air Liaison Officer, on left of picture. On Viscount Trenchard's left is Air Vice-Marshal H. L. Campbell, Chairman of the Canadian Joint Staff, Washington, D.C., who accompanied Lord and Lady Trenchard to Canada

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Marshal of the R.A.F. Visits R.C.A.F.

Marshal of the Royal Air Force, The Viscount Trenchard, G.C.B., O.M., G.C.V.O., D.S.O., D.C.L., LL.D., accompanied by Lady Trenchard, arrived at Ottawa's Rockcliffe Airport on 16th April, 1952, to begin a three-week visit to Canada and the United States of America.

Lord and Lady Trenchard are paying visits to Montreal, Trenton, Ont., Winnipeg, Vancouver, Edmonton, Toronto, Akron, Ohio, and Washington, D.C., and the Marshal will inspect Royal Air Force students training at several R.C.A.F. stations across Canada.

While in Ottawa, Lord Trenchard and Lady Trenchard will be the guests of His Excellency Sir Alexander Clutterbuck at Earnscliffe, the official residence of the United Kingdom High Commissioner.

Lord Trenchard, the Marshal of the Royal Air Force, began his illustrious service career with the British Army in 1893. He served with the Army in many parts of the globe and was seriously wounded during the South African War.

Lord Trenchard learned to fly during the early years of the 20th century and became an instructor with the Central Flying School in 1912. During World War I he commanded the Royal Flying Corps in France and later formed and commanded the Independent Air Force in 1918. When the Royal Air Force succeeded the Royal Flying Corps, Lord Trenchard was appointed Chief of the Air Staff, a position he held from 1918 until 1929, meanwhile becoming Marshal of the R.A.F. in 1927.

Lord Trenchard holds many high military decorations, including several foreign honours. As well as the Commandant of the Legion of Honour, Lord Trenchard also holds the Russian Order of St. Anne, the Order of King Leopold of Belgium, the American Distinguished Service Medal, the Order of the Crown of Italy, the Russian Order of St. Stanislaus, and the Order of the Sacred Treasurer of Japan.

Lord Trenchard has always been an advocate of air power both in peace and war. The supreme test of his planning and his belief in the importance of air power came in the Second World War when the quality of the force he had done so much to establish was proved beyond doubt and he emerged as the architect of Britain's air strength. Still actively interested in aviation, Lord Trenchard became the first Marshal of the R.A.F. to fly in a jet fighter in October, 1950, at the age of 78.

Ground Trainers for Latest R.A.F. Jet Bombers and Fighters

Synthetic trainers are being designed for the Valiant bomber and the latest jet fighters, so that Air Force pilots of stratospheric jet bombers and supersonic fighters can do a great part of their familiarization flying on the ground.

The trainers, which are exact replicas of the pilot's cabin of combat aircraft, can do on the ground everything that can be done in the air. This does not mean that they replace flying trainers: it does mean that they can be used twenty-four hours a day, in all weathers—in other words they supplement, but do not replace, actual flight.

Experts believe that synthetic trainers will ultimately play a major part in the training of pilots and navigators because they are safer, cheaper and easier on time and manpower. It costs several hundred pounds an hour to operate a modern jet bomber, but a simulator would probably cost less than £50 an hour. By combining real flying time with ground training, over-all costs might be cut by 50 per cent.

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R.Aux.A.F. Fighter Squadrons' Summer Camps in Malta and Germany

Arrangements have been made for "Week-end" pilots of fourteen squadrons of the Royal Auxiliary Air Force to fly their jet fighters overseas to summer practice camps, half of them to Malta and half to Germany, the ground crews being flown out in transport aircraft.

The other six squadrons are to spend their fortnight's camp at Fighter Command stations in England and Scotland.

Last year the squadrons had no summer camps as they were called up for three months' continuous training, which they did at their home stations and at regular fighter stations, with a fortnight at the armament practice camp at Acklington (Northumberland).

In previous years overseas training for the R.Aux.A.F. was confined to visits by two or three squadrons to the German island of Sylt.

Squadrons visiting Malta, based at the R.A.F. Station, Takali (with the types of fighter they fly and the dates of the camp) are:

501 (County of Gloucester). Vampire 5. 16th to 30th August.
601 (County of London). Vampire 3. 14th to 28th June.
604 (County of Middlesex). Vampire 3. 31st May to 14th June.
605 (County of Warwick). Vampire 5. 28th June to 12th July.
608 (North Riding). Vampire 3. 30th August to 13th September.
612 (County of Aberdeen). Vampire 5. 12th to 26th July.
613 (City of Manchester). Vampire 5. 26th July to 9th August.

Visiting the 2nd Tactical Air Force in Germany and based at R.A.F. Station, Celle:

600 (City of London). Meteor 4. 19th July to 2nd August.
504 (City of Nottingham). Meteor 4. 19th July to 2nd August.
602 (City of Glasgow). Vampire 5. 19th July to 2nd August.
603 (City of Edinburgh).) Vampire 5. 5th to 19th July.
609 (West Riding). Meteor 8. 7th to 21st June.
616 (South Yorkshire). Meteor 8. 5th to 19th July.
615 (County of Surrey). Meteor 8. 31st May to 14th June.

The three squadrons visiting R.A.F. Station, Leuchars, Fife, are:

500 (County of Kent). Meteor 8. 28th June to 12th July.
607 (County of Durham). Vampire 5. 12th to 26th July.
611 (West Lancashire). Meteor 8. 14th to 28th June.

Visiting R.A.F. Station, Tangmere:

610 (County of Chester). Meteor 8. 9th to 23rd August.
614 (County of Glamorgan). Vampire 5. 21st June to 5th July.

No. 502 (Ulster) Squadron's Vampire 5's will fly from their base at Aldergrove to R.A.F. Station, Biggin Hall, Kent, for the period 19th July to 2nd August.

Royal Air Force Dinner Club

The annual dinner was held at the Park Lane Hotel, Piccadilly, on Friday, 21st March, when the Chief of the Air Staff, Marshal of the Royal Air Force Sir John Slessor, G.C.B., D.S.O., M.C., gave his customary review to past and present senior officers of the R.A.F. The numbers present showed the increased popularity of the R.A.F. Dinner Club and the large number of officers on the "waiting list" occasioned a vote to be taken by the president on a proposal to increase the maximum membership from 500 to 750 members. This was carried unanimously.

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Officers of the substantive rank of Wing Commander and above who wish to join should communicate with the Honorary Secretary, R.A.F. Dinner Club, Air Ministry, Room 233, Adastral House, Kingsway, London, W.C.2.

R.A.F. Outshoot Army in Egypt

The first annual championships of the newly formed Middle East Air Force Small Arms Association were held recently on the British Army ranges at Fanara. The meeting lasted three days and there were about 200 competitors, some of whom had travelled from Iraq, Aden, Malta and Cyprus.

As a result of the meeting, the R.A.F. in the Middle East will for the first time in many years be represented at the R.A.F.'s annual Small Arms Association's Championships at Bisley in June. A specially picked M.E.A.F. Command team, including marksmen from the Aden Protectorate Levies, R.A.F. Station, Habbaniya, in Iraq, and the R.A.F. Stations El Firdan, Fayid and Abyad in the Canal Zone, compiled a score of 1,185 points, which will count as M.E.A.F. Command's score in the competition for the Royal Air Force Command Challenge Cup.

An outstanding feature of the meeting was a rifle contest between the Army and the R.A.F., believed to be the first ever to have been held between these two services in the Canal Zone. The event was hotly contested and the issue was in doubt until the fourth and final phase, in which the R.A.F. marksmen defeated their Army opponents at snapshooting from 300 yards.

Elephants Take a Week; the R.A.F. Two Hours

A week's work for a train of elephants with an escort of sixty fighting men is now undertaken by Valetta transport aircraft of the Royal Air Force in Malaya. It takes the aircraft two hours to do the job.

Every second month a Valetta flies out from Kuala Lumpur, the capital of the Federation of Malaya, to drop by parachute between two and three tons of food and supplies to a remote Malay village in nearly inaccessible country near the Thailand border.

The food and supplies are a continuing reward for the people of the village who a year ago fought to the death against a large Communist gang which attempted to take the place over.

The village is Kampong Temenggor, in the State of Perak—thirty miles as the crow flies from the nearest town, but separated from it by such appalling hill, jungle and swamp country that it might almost be in a different world.

As a reward for their bravery, the villagers were promised that regular supplies would be brought to them so as to save them the arduous trek through the jungle. In the early days of the emergency the village was supplied by elephant train, the journey taking a week and requiring an armed escort of sixty men.

A Valetta now drops parachute containers with sugar, salt, dried chillies, tobacco and cigarettes, tea, matches, condensed milk, kerosene, cooking oil and other necessities. The villages have laid out a dropping zone and the bi-monthly visit of the Valetta not only refills their store cupboards but acts as a local social occasion, at which old and young gather to distribute the rewards of courage.

Reorganization of R.A.F. Gliding and Soaring Association

After two years' growth it has been found necessary to reorganize the R.A.F.

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Gliding and Soaring Association so that its equipment and facilities may be made available to the greatest possible number of people and its expansion may continue on a sound basis.

The aim of the Association is to bring gliding and soaring within reach of all members of the Royal Air Force, especially those normally employed on the ground. It comprises all R.A.F. gliding and soaring clubs formed in the United Kingdom. Similar R.A.F. clubs formed overseas may join as associate clubs.

So that the best use may be made of the funds and resources available, the Association has selected seven clubs to be known as area clubs, which R.A.F. units in the vicinity will be encouraged to join.

The seven area clubs have their headquarters at the R.A.F. stations at Compton Bassett, Wilts (where the club is known as the "Moonrakers"); Boscombe Down, Wilts; Watton, Norfolk; Scampton, Lincs; Bridgnorth, Shropshire; Pitreavie Castle, Dunfermline, Fife (H.Q., No. 18 Group, Coastal Command, and of the Balado Gliding Club); and Middleton St. George, near Darlington.

Although seven Area Clubs are contemplated at present, it is recognized that there are other clubs whose function is to provide gliding facilities for their own unit personnel or for certain special categories of personnel (such as the Royal Aircraft Establishment) as distinct from serving a wide area as Area Clubs do. These unit clubs will not be subsidized by the Association but will be assisted in every other way possible. They will be known as Associate Clubs.

New Plan to Meet Airborne or Ground Attacks

Important changes have been made in the arrangements for ground defence training in the Royal Air Force. The object is to implement more effectively the standing requirement that every airfield and R.A.F. installation shall be capable of defending itself against airborne or ground attack in time of war.

In future all officers and airmen must attain specified standards of proficiency in ground defence training. It is hoped to incorporate ground defence into some of the air exercises during the summer. Officers and airmen of the R.A.F. Regiment Depots and Schools in various parts of the country have formed mobile columns to augment Army forces in operations against enemy paratroops.

The test for airmen covers weapons proficiency—rifle, bayonet, Bren gun, grenade and pistol, fieldcraft and passive defence. N.C.Os. must be able to lead their men and have a general knowledge of their station ground defence scheme; their tests help to assess powers of leadership. Officers are required to be capable of supervising and leading their subordinates in ground defence operations. They must be able to answer questions on the principles and organization of ground defence, and to demonstrate that they can deal with a tactical situation on the ground. They are also tested on their knowledge of rescue, first-aid and fire-fighting. Basic knowledge of ground defence is to form part of the qualifications for promotion for both officers and N.C.Os.

To assist Station Commanders in maintaining effective defence schemes for their airfields, they are encouraged to visit the R.A.F. Regiment Depot at Catterick, Yorks, to discuss the latest developments and techniques. These visits have a double value. Apart from giving senior officers of the flying branch the opportunity of gaining a better knowledge of ground defence, they help to ensure that airfield defence schemes are realistic from the flying point of view.

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R.A.F. Features in Royal Tournament

As we go to press preparations are well in hand for this year's Royal Tournament.

Nearly 100 Royal Air Force recruits, each with less than six months' service, are to give a display of illuminated club swinging at the Royal Tournament, to be held at Earl's Court, London, from 4th to 21st June. With clubs illuminated in green, yellow and red, the performers themselves, wearing black gymnasium vests, will be hardly discernible during the display.

R.A.F. Police dogs will also give a display. Under the control of Service handlers these Alsatian dogs will demonstrate their capacity of obedience, their method of attack on intruders, and give various examples of the duties they carry out in the R.A.F.

The R.A.F. Regiment, which this year is celebrating its tenth anniversary, is to provide a team of young men, averaging 19 years of age, to give a continuation drill display in which all the movements will be made without words of command. They will be accompanied by the band of the R.A.F. Regiment under the direction of Warrant Officer B. Hutchinson, L.R.A.M.

R.A.F. Yacht Club H.Q. Opened by Chief of the Air Staff

The Chief of the Air Staff, Marshal of the R.A.F. Sir John Slessor, opened the new headquarters of the Royal Air Force Yacht Club, "Riverside House," Hamble, Hants, on Saturday, 10th May. He flew from Northolt to Hamble airfield, where he was met by the Commodore of the club, Group Captain E. F. Haylock, R.A.F. (retd.).

A short ceremony took place on the lawn, the club's ensign being broken at the mast as the Chief of the Air Staff declared the headquarters officially open.

The club was founded twenty years ago at Calshot, Hants, by a group of officers with the object of assisting and encouraging amateur sailing, racing and motor boating by commissioned officers of the R.A.F. It was known as the Calshot Yacht Club, but shortly afterwards the Air Council approved the alteration of its name to that of the Royal Air Force Yacht Club in recognition of the pioneer work carried out by the founder members.

Early in 1936 the Lords Commissioners of the Admiralty granted the club the privilege of flying the Blue Ensign of H.M. Fleet defaced with the Crown and Eagle of the R.A.F. on yachts belonging to members of the club.

Until the outbreak of war in 1939, the club used the Officers' Mess at R.A.F. Station, Calshot, as its headquarters. In 1946 the Air Ministry leased part of Calshot Castle to the club, while additional accommodation was erected on the foreshore.

Recently the club acquired an old country house and its extensive grounds on the banks of the river at Hamble which are its present headquarters.

From these pleasant surroundings the club pursues its policy of assisting and encouraging sailing among R.A.F. officers and providing facilities to members at reasonable rates. The club owns two 50-square-metre sloops, two 30-square-metre sloops, two X-Class O.D.'s, and other small craft. An annual regatta is held, which this year will take place on Saturday, 16th August, and is one of the major Solent fixtures.

The Vice-Commodore of the club is Wing Commander A. M. G. Lywood, D.F.C., the Rear-Commodore Group Captain T. H. Carr, D.F.C., A.F.C., R.A.F. (retd.), and the Secretary Flight-Lieutenant A. F. Pudsey.

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W.R.A.F. INTER-SERVICES' BADMINTON TEAM
Winners of the Inter-Services Championship, 1951-52

[Air Ministry Photo.

INTER-COMMAND RUGBY, 1951-52
Bomber Command XV, who were the winners of this competition

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SPORT IN THE R.A.F.

By J. Sephton

WHILST almost every officer, airman and airwoman plays some type of sport, maybe soccer, rugger, table tennis, basket-ball, netball or rowing, it is very doubtful if a fair percentage know what goes on behind the scenes.

THE R.A.F. SPORTS BOARD

There is established at the Air Ministry the Royal Air Force Sports Board, the policy of which is to encourage and assist sport in the Service in such a manner as will raise the standard of sport and encourage the spirit of healthy rivalry. The President of the R.A.F. Sports Board is The Chief of the Air Staff. The Chairman is the Director-General of Personnel (I) at present Air Vice-Marshal N. S. Allinson, C.B. The Director of Sports and Inspector of Recreational Grounds is Wing Commander J. Lawson, O.B.E. (retd.). The Executive Committee of the Board consists of Director General of Personnel (I), Director General of Organization, and Director of Personal Services (A). The secretary and treasurer is Wing Commander A. F. Ingram.

Additional members of the Sports Board are the air officers in charge of administration at each of the commands at home, Air Officer Commanding No. 90 Group and the Director of the Women's Royal Air Force.

SPORTS ASSOCIATIONS AND UNIONS

There are at the moment twenty-four different Sports Associations and Unions in the Royal Air Force—Association Football, Athletics, Badminton, Basketball, Beagling, Boxing, Cricket, Cycling, Equitation and Modern Pentathlon, Fencing, Gliding and Soaring, Hockey, Lawn Tennis, Model Aircraft, Mountaineering, Netball, Rowing, Rugby, Sailing, Small Arms, Squash Rackets, Swimming, Table Tennis and Winter Sports. These Associations/Unions are responsible for their particular branch of sport throughout the Royal Air Force. The Air Ministry having appointed a senior air officer for each Association/Union, to act as president, an annual meeting is held by each at the Air Ministry, when they elect their honorary officials for the season, i.e., chairman, secretary, treasurer and competition secretary. In addition to these officers a representative from each of the commands at home and one from No. 90 Group form a General Committee, which meets to decide the organization of the sport in question. From the General Committee an Executive Committee is formed, which looks after the day-to-day affairs of the Association/Union. The most important point is, that the Command representatives are responsible for the policy of the particular Association being circulated in their respective commands.

INTER-COMMAND, INTER-STATION AND INDIVIDUAL CHAMPIONSHIPS

These are organized by the above-mentioned Associations/Unions. All the inter-station knock-out competitions are organized on behalf of the Associations from the central office of the Sports Board at the Air Ministry. The organization is such that stations can be given a quick answer to all their problems, instead of running round the country after the secretary of the Association. The competitions are run on a geographical basis to minimize travelling and to help the funds of Station P.S.Is. In addition to inter-command and inter-station com-

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petitions the Athletic, Badminton, Boxing, Cycling, Modern Pentathlon, Fencing, Golf, Lawn Tennis, Model Aircraft, Rowing, Sailing, Squash Rackets, Swimming and Table Tennis Associations hold individual championships. The Equitation Association hold gymkhanas, Mountaineering Associations have regular climbing meets in the British Isles and on the Continent, and the Winter Sports Association are responsible for the holiday scheme at Chamonix. The R.A.F. Small Arms Association is responsible for the annual meeting which is held at Bisley usually in June. The object of all these competitions is to ensure that the best possible team at each sport is selected to represent the Royal Air Force and so endeavour to win the Inter-Services Championships.

SELECTION OF R.A.F. REPRESENTATIVE TEAMS

Inter-Services Championship in which teams from the Army and Royal Navy take part are held in all the sports mentioned, except badminton, gliding and soaring, equitation, model aircraft, mountaineering, rowing and table tennis.

Presumably from time to time one wonders how the teams are selected to play for the Royal Air Force against the Army and the Royal Navy in the inter-services matches. It first starts at the station level. In the majority of cases stations are asked to submit to their respective command sports representatives the particulars of outstanding athletes, soccer players, rugby players, etc. Commands then arrange a trial match before the final selection of their command teams to play in the inter-command competitions. Immediately the inter-command competitions begin, the selection committee of that particular sport attend all the matches on the look-out for talent. The performance of each individual is noted, and then the first Royal Air Force team is selected. Before the inter-services games are due, a series of matches are arranged, usually against the Universities and leading civilian clubs. The team is slowly but surely blended together, and as a result, in almost every case the best possible Royal Air Force team enters the field to battle for the Inter-Services Championships. Civilian clubs also help with organization of sport by informing the Sports Board of outstanding members of their clubs who have volunteered for the Service or have been called up for National Service. This information is then passed down through the Association, command and down to station level.

Those selected to represent the Royal Air Force in the inter-services matches at home against the Royal Navy and the Army are entitled to wear on the breast-pocket of their Royal Air Force blazer the Royal Air Force badge, full particulars regarding which can be found in Air Ministry Order A.17/51. In addition there is also a representative tie awarded under the same conditions as the Royal Air Force Badge. Air Ministry Order A.33/51 gives details of the representative tie.

A sportsman is a man who does not boast, nor quit, nor make excuses when he fails. He is a cheerful loser, and a modest winner. He plays fair and as well as he can. He enjoys the pleasure of risk. He gives his opponent the benefit of the doubt, and he values the game itself more highly than the result.

It should be one of the ambitions of every officer and airman to represent his station or unit in some form of team competition.

THE ADASTRIAN CRICKET CLUB

The Adastrian Cricket Club held its first annual dinner at Lords Tavern on 25th April, 1952. The chair was taken by Air Marshal Sir Cyril Cooke, K.C.B., C.B.E., R.A.F. (retd.), who has recently succeeded Air Marshal Sir Leonard Slatter, K.B.E., C.B., D.S.C., D.F.C., R.A.F. (retd.), as president of the club.

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In proposing the health of the club Sir Cyril Cooke explained that all the records of the club had been destroyed during the war, but as far as he could recollect the club was formed in 1924 or 1925. Its object had been to give potential R.A.F. players experience of representative type cricket and it had done this so well that the R.A.F. had for the first time in 1927 beaten both the Royal Navy and the Army. There were five members of this side present at the supper. Sir Cyril Cooke went on to say that the crying need of the Adastrians at the moment was more young players. There is an attractive fixture list and a welcome waiting for all young cricketing officers.

As far as is known this dinner was the first social function of any sort organized by the Adastrians, but it is hoped that the dinner will now become an annual event.

Included in the Adastrian Cricket Club fixture list for July are matches versus the R.A.F. College at Cranwell on Saturday, 19th July, and the R.A.F. Staff College at Bracknell on Wednesday, 30th July, 1952.

SPORTS FIXTURES

SUMMER PROGRAMME—1952

JULY

2	*Cycling.*—R.A.F. Grass Track Championships at Halton.
2	*Athletics.*—Inter-Services Championships, at Aldershot.
4	*Shooting.*—Methuen Cup Competition, at Bisley.
5	*Athletics.*—R.A.F. College *v.* R.M.A. *v.* R.N. College, at Camberley.
5	*Lawn Tennis.*—W.R.A.F. *v.* Herga L.T. Club, at Harrow.
5-6	*Cricket.*—R.A.F. *v.* Free Foresters, at R.A.F., Abingdon.
7-19	*Shooting.*—National Rifle Association Imperial Meeting, at Bisley.
8	*Swimming.*—R.A.F. *v.* Otter S.C., at Chelsea.
9	*Swimming.*—R.A.F. *v.* East Ham S.C., at Central Baths, East Ham.
10	*Swimming.*—R.A.F. *v.* Kent County, at Eltham.
11	*Swimming.*—R.A.F. *v.* Kingsbury S.C., at Hampstead.
12	*Swimming.*—R.A.F. *v.* Sutton and Cheam S.C., at Sutton.
12	*Cricket.*—W.R.A.F. *v.* Ex-Waafians, at R.A.F., Henlow.
12	*Lawn Tennis.*—W.R.A.F. *v.* Roehampton L.T.C., at Roehampton.
13	*Lawn Tennis.*—R.A.F. *v.* Queen's Club, at West Kensington.
16	*Cycling.*—R.A.F. 100-Mile Time Trial, at R.A.F., Innsworth.
16-17	*Cricket.*—R.A.F. *v.* Royal Navy, at Lords.
17-22	*Cricket.*—3rd Test Match, at Old Trafford, Manchester.
20	*Cycling.*—R.A.F. 12-hour Time Trial.
23	*Cycling.*—Inter-Services 50-Mile Trial, at R.A.F., Brampton.
26	*Athletics.*—Air Training Corps Championships, at R.A.F. Stadium, Uxbridge.
27	*Golf.*—R.A.F. Golfing Society *v.* 2nd T.A.F., at Bad Eilsen.
27	*Cricket.*—W.R.A.F. *v.* Cheshire, at Timperley.
28-29	*Cricket.*—R.A.F. *v.* Civil Service, at Chiswick.
28-2 Aug.	*Lawn Tennis.*—R.A.F. Championships, at All England Croquet and Lawn Tennis Club, Wimbledon.

AUGUST

1	*Swimming.*—R.A.F. *v.* Cheltenham S.C., at Cheltenham.
4-5	*Lawn Tennis.*—Inter-Services Championships at All England Croquet and Lawn Tennis Club, Wimbledon.
6-7	*Cricket.*—R.A.F. *v.* Army, at Lord's.
11-12	*Cricket.*—Combined Services *v.* Public Schools, at Lord's.
12	*Cycling.*—R.A.F. Hard Track Championships at Herne Hill Track, London, S.E.14.
14-19	*Cricket.*—4th Test Match, at The Oval.
15	*Cycling.*—Inter-Services Track Championships, Alexandra Park, Portsmouth.
16	*Athletics.*—Combined Services *v.* Amateur Athletic Association, at R.A.F. Stadium, Uxbridge.
18-23	*Modern Pentathlon.*—R.A.F. Championships, at R.A.F., Halton.

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[Photo: Gale & Polden Ltd., Aldershot.

The R.A.F. hockey team who played the Army at Aldershot on 2nd April, 1952, in the Inter-Services Competition

[Air Ministry Photo.

REPRESENTATIVE R.A.F. SOCCER TEAM, 1951-52 SEASON

Back Row : A.C. Cunningham (R.A.F., Turnhouse), A.C. Lievers (R.A.F. Stoke Hammond), A.C. Finlayson (R.A.F., Netheravon), A.C. O'Donnell (R.A.F., Henlow), A.C. Thomas (R.A.F., Kinloss), and A.C. Brown (R.A.F., Padgate)

Front Row : A.C. Lythgee (R.A.F., Cosford), Cpl. Whyte (R.A.F., Bishop Briggs), Flight Lieutenant Croker (R.A.F., Moreton-in-the-Marsh), A.C. Mudie (R.A.F., Weeton) and A.C. Askey (R.A.F., Church Lawford)

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21 *Sailing.*—Sir Ralph Gore Cup for Fireflies, at Plymouth.
26-28 *Swimming.*—R.A.F. Championships, at R.A.F., St. Athan.
28 *Sailing.*—Sir Wm. Burton Cup for 12ft. Nationals, at Weymouth.
29 *Cricket.*—W.R.A.F. *v.* W.R.N.S., at Vine Lane, Uxbridge.
30 *Cricket.*—Combined Services (Women) *v.* Women's Cricket Association, at Vine Lane, Uxbridge.

SEPTEMBER

1 *Cricket.*—W.R.A.F. *v.* W.R.A.C.
2-4 *Golf.*—Autumn Meeting at Berkshire Golf Club.
6 *Sailing.*—Royal Yacht Squadron Gold Cup for Service Yacht Clubs, at Seaview, Isle of Wight.
6-7 *Model Aircraft.*—R.A.F. Championships, at R.A.F., Newton.
7 *Sailing.*—Coningham Inter-Services Team Race, at Seaview, Isle of Wight.
7 *Cycling.*—Inter-Services massed start Championships at Blandford, Dorset.
11-14 *Sailing.*—Royal Air Force Individual and Command Championships, at Welsh Harp, Hendon.
14 *Model Aircraft.*—R.A.F. *v.* Society of Model Aero Engineers.
16 *Swimming.*—Water Polo (R.A.F. *v.* Army) and Combined Services One-Mile Championships, at R.A.F., Cosford.
17 *Golf.*—R.A.F. and W.R.A.F. *v.* R.N. and W.R.N.S., at Camberley Heath.
17-18 *Swimming.*—Inter-Services Championships, at Eltham Baths, London, S.E.9.
19 *Golf.*—Inter-Services (Women's) Triangular Tournament.

SPORTS RESULTS WINTER SEASON, 1951-52

INTER-SERVICES CHAMPIONSHIPS

Association Football

Royal Air Force, 1; Royal Navy, 1.
Royal Air Force, 1; Army, 2.
Royal Navy, 2; Army, 3.
Army won championships.

Cross-Country

Royal Air Force, 39 points.
Army, 59 points.
Royal Navy, 84 points.
Royal Air Force won championships.

Individual Placings

1.—Junior Technician Ranger (30 min. 30 sec.).
2.—Leading Aircraftman Wilson (30 min. 39 sec.).
3.—Private Tooley (30 min. 45 sec.).

Badminton (Women's Services)

W.R.A.F., 16 matches.
W.R.A.C., 9 matches.
W.R.N.S., 2 matches.
W.R.A.F. won championships.

Basket-ball

Royal Air Force, 30; Royal Navy, 32.
Royal Air Force, 50; Army, 33.
Royal Navy, 38; Army 45.
Royal Air Force won championship.

Boxing—I.S.B.A. Championships

Royal Air Force, 30 points.
Army, 30 points.
Royal Navy, 20 points.
Royal Air Force and Army joint champions.

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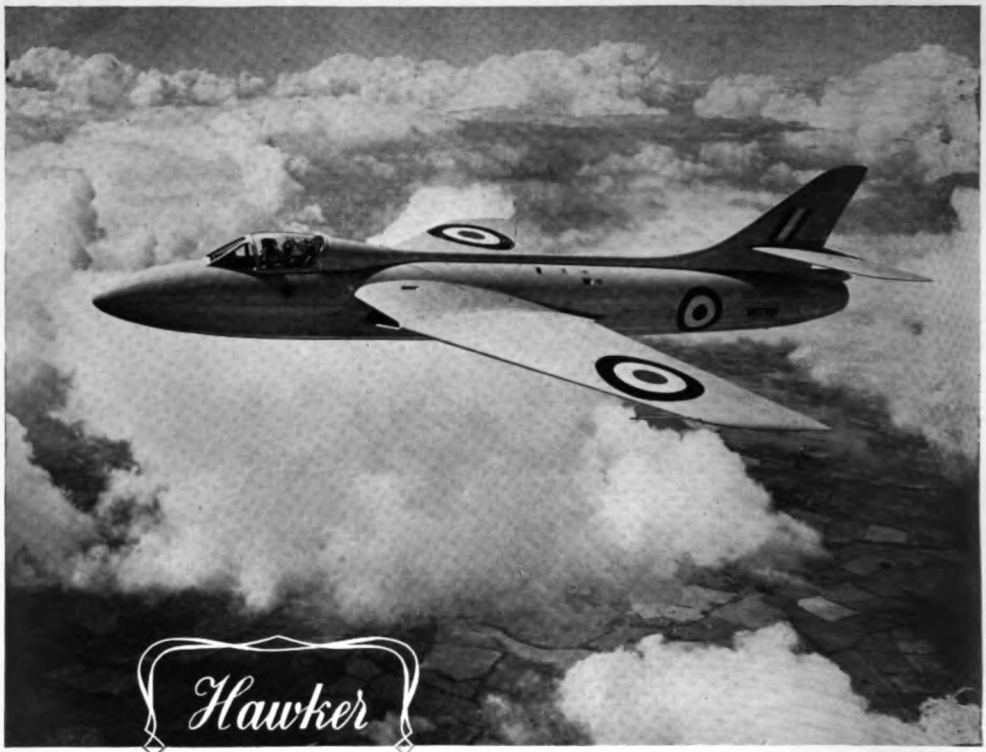

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Individual Results

Fly-weight.—Private D. Granville (Army).
Bantam-weight.—Lance-Corporal N. Grant (Army).
Feather-weight.—Senior Aircraftman P. Lewis (Royal Air Force).
Light-weight.—Aircraftman A. Wallace (Royal Air Force).
Light Welter-weight.—Senior Aircraftman K. Ernest (Royal Air Force).
Welter-weight.—Aircraftman J. Maloney (Royal Air Force).
Light Middle-weight.—Aircraftman B. Wells (Royal Air Force).
Middle-weight.—Lance-Corporal T. Gooding (Army).
Light Heavy-weight.—Second-Lieutenant P. Hoppe (Army).
Heavy-weight.—Aircraftman D. Rowe (Royal Air Force).

I.S.B.A. Boys' Championships

Royal Air Force, 31 points.
Royal Navy, 26 points.
Army, 23 points.
Royal Air Force won championships.

Hockey

Royal Air Force, 4; Royal Navy, 1.
Royal Air Force, 0; Army, 2.
Royal Navy, 0; Army, 4.
Army won championships.

Women's Services

W.R.A.F., 8; W.R.A.C., 2.
W.R.A.F., 2; W.R.N.S., 2.
W.R.N.S., 3; W.R.A.C., 1.
W.R.A.F. and W.R.N.S. joint champions.

Netball

W.R.A.F., 13; W.R.N.S., 11.
W.R.A.F., 19; W.R.A.C., 10.
W.R.N.S., 21; W.R.A.C., 17.
W.R.A.F. won championship.

Rugby Football

Royal Air Force, 0; Royal Navy, 6.
Royal Air Force, 6; Army, 9.
Royal Navy, 3; Army 11.
Army won championships.

Shooting—Small-Bore (Men's Services)

Royal Air Force, 7,884 points.
Regular Army, 7,840 points.
Territorial Army, 7,754 points.
Royal Navy, 7,744 points.
Royal Marines, 7,742 points.
R.A.F. won championship.

Shooting—Small-Bore (Women's Services)

W.R.N.S., 1,545 points.
W.R.A.F., 1,523 points.
W.R.A.C., 1,522 points.
W.R.N.S. won championships.

Squash Rackets (Men's Services)

Royal Air Force, 1 match; Royal Navy, 4 matches.
Royal Air Force, 1 match; Army 4 matches.
Royal Navy, 4 matches; Army, 1 match.
Royal Navy won championships.

Squash Rackets (Women's Services)

W.R.A.C., 8 matches.
W.R.A.F., 4 matches.
W.R.N.S., 3 matches.
W.R.A.C. won championships.

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BOOK REVIEWS

Tedder. By Roderic Owen. Collins, St. James's Place, London, S.W.1. 320 pp. 18s.

In the summer of 1942, Air Chief Marshal Sir Arthur Tedder (as he then was) found himself confronted with a delicate situation. Rommel was at the gates of Egypt; but Tedder knew that General Auchinleck's Army and his own Desert Air Force could take care of that problem. The real headache was what to do with advance elements of the U.S. Army Air Force under General "Hotfoot Lewie" Brereton, which were expected in Egypt at any moment.

Theoretically, they were to be at Tedder's disposal; but the U.S.A.A.F. at that time was an integral part of the U.S. Army, and there was already an American general senior to Brereton in the Middle East. That U.S.A.A.F. formations should be controlled not only by an Air Force commander, but by a British one at that, was therefore a fantastic proposal that could easily have had an adverse effect on the whole future of Anglo-American relations. The problem was overcome in typical Tedder manner by a compromise of uncertain legality which left details unsolved, but which worked in practice very well.

Nominally, the American contingent remained independent and responsible to the senior American general. Actually, its men and machines were infiltrated gradually into existing R.A.F. wings, not as whole squadrons at a time—for that would have created a series of small indigestible lumps—but in half flights or less, starting with the U.S. squadron leaders. When they returned fully indoctrinated with Desert Air Force *esprit de corps*, it was not long before their men all felt exactly the same way. "Hotfoot Lewie," to his own amazement, found himself "100 per cent. sold on Tedder from the word go," and the American and British air forces soon merged in Mediterranean Air Command—a prototype for the great combined air forces which swept the Luftwaffe from the sky before and during the subsequent invasion of Europe, again under Tedder's over-all command.

That episode is typical of Roderic Owen's Tedder, and the reader is left in little doubt of his greatness as a military leader or of the qualities of modesty, tact, scholarly intelligence and determination, that helped to produce one of the least orthodox commanders in history. Unfortunately they are not the qualities which help an author to produce an exciting biography, and *Tedder* lacks the intrique, glamour and axe-grinding that make some other biographies of German and Allied war leaders so readable. But it should prove an inspiration to young officers of the Service which Lord Tedder entered as the result of an accident and rose to command. And it should warn the Treasury against the type of economy that in 1928 expected a promising young staff officer to remain keen and efficient whilst living with his family in two meagre rooms; for we are not all Tedders.

J. W. R. T.

The White Rabbit. By Bruce Marshall. Evans Bros., Montague House, Russell Square, London, W.C.1. 262 pp. Illustrated. 16s.

Almost everybody likes a good "cloak and dagger" story, with a full quota of secret codes, dark deeds in back streets, beautiful spies and dashing young heroes. But when the dark deeds, brutal beatings-up and murders concern real men, the story begins to lose its appeal and one can only wonder if Mr. Marshall has overdone the gruesome details in this book.

"The White Rabbit" was one of the code names used by Wing Commander Yeo-Thomas, G.C., M.C., during his war-time missions to help the Maquis in France. When the plain language broadcasts of the B.B.C. to Europe stated that the White Rabbit had returned to its hutch, the French Resistance, and the Gestapo, knew that he was safely back in England. But one day the White Rabbit was trapped and did not return; and the last two-thirds of this book describe his terrible experiences at the hands of the Gestapo and S.S. during interrogation and imprisonment in the death camps of Buchenwald and Gleina.

They leave one with mixed feelings of admiration for the incredible bravery and loyalty of Yeo-Thomas and his colleagues, both men and women; and of horror that any human beings could have inflicted such suffering on others. Never has life and death in a concentration camp been made so vividly real to the reader; and, realizing that many of the camp commanders are free today in Germany, one cannot help recalling Major Seversky's warning (in *Air Power: Key to Survival*) on the rearming of Germany and Japan: "To make up for inadequate manpower in World War II, we created a Frankenstein monster.

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Now, in preparing to subdue him if necessary, we are advised to create two such monsters, again with no assurance that they will not turn against us."

There is a warning for Russia too in the account of gallant deeds by the French underground movement. After repeated air bombardments had failed to hinder production at a ball-bearing works at Annecy, for example, three saboteurs, with explosives and the complicity of one or two workers, so damaged the machinery that the factory never produced another ball-bearing during the German occupation. A force of such men among Russia's unwilling European "Allies," equipped with devices like magnetic time-bombs for clamping against the hulls of ships, explosive coal and altimeter switches which blow off an aircraft's tail when it reaches a certain height, could be worth several divisions to the Western Powers.

J. W. R. T.

East versus West. By Lieutenant-General Sir Giffard Martel, K.C.B., K.B.E. Published by Museum Press Ltd., 63 Old Brompton Road, London, S.W.7. 217 pages. 12s. 6d. net. Published 19th March, 1952.

This book, written by a well-known authority on military affairs, discusses the situation which has led to the division of the post-war world into two opposing camps—"East versus West." After carefully examining the plans and intentions of the Eastern powers, General Martel proceeds to outline a scheme for the West, which he considers would be the most effective for countering Soviet machinations.

The author, a very distinguished soldier, clearly has both feet very firmly on the ground, perhaps even a little too firmly, as his concentration on the employment of the armoured corps and infantry in the past and possible future wars, seems to leave him but little time for more than an occasional glance to the skies above his battle. The same concentration of so able a mind upon the effect of the development of air power upon methods of waging the next war, would have made his study of the needs of this country to meet the threat from the East more realistic and somewhat less based upon the methods of waging past wars.

Any disagreement with the author upon his proposed use of air power in a clash with Russia in no way detracts from the interest of this book. It is full of interest from cover to cover. His almost unique experience in tank warfare, added to that gained as head of the British Military Mission in Russia, gives authority to his arguments and advice. He is most convincing in his advocacy for two types of tanks; the heavy infantry tank for position warfare and the fast cruiser one for mobile warfare.

The author naïvely admits that he took essential air support of ground forces so much for granted that he frequently forgets to mention it, but he does not make it clear that command of the air is an essential pre-requisite to any successful land operations. He makes the oft-repeated recommendation of the man in the street for a strong fighter aircraft force, but first things should come first, and he does not seem in agreement with the most important, i.e., a strong strategic bomber force to destroy the wasps nest, in addition to the long-drawn-out process of swotting individual wasps when they arrive over this country.

The strength and efficiency of the Russian Air Force today, owing to the meagre information available, is somewhat difficult to assess. It is, however, a grave mistake to underestimate the strength of your enemy, and with such information that is available the implied suggestion made in this book, that modern Russian aircraft are in any way inferior to those of the Western Allies, leaves one in doubt as to the extent of the author's knowledge of Russian air strength or the efficiency of the various types of the Soviet's modern air force.

At the end of Chapter 6, appears once again the now very out-of-date challenge to the proper role of air power in war. It is remarkable that, after the lessons of the last war, the author should show such a lack of appreciation of the effect of strategic bombing. He seems to favour the old-fashioned idea that the role of the Air Force is "the goalkeeper at home, and half-back on the Continent, to feed the forward line (the Army) with the ball with which to attack"; instead of this country's "first line of defence." This is now its officially accepted role, and there is no need to reiterate that the best method of defence is attack, carried home to the very heart of the enemy.

East versus West is a soldier's book, and the author's wealth of experience of army warfare makes his advice on this subject authoritative and a valuable contribution to army literature. To students of "wars of the future" his views on the use of air power have not the same authority, and, although stimulating and provocative, are somewhat out-moded.

A. H. S.

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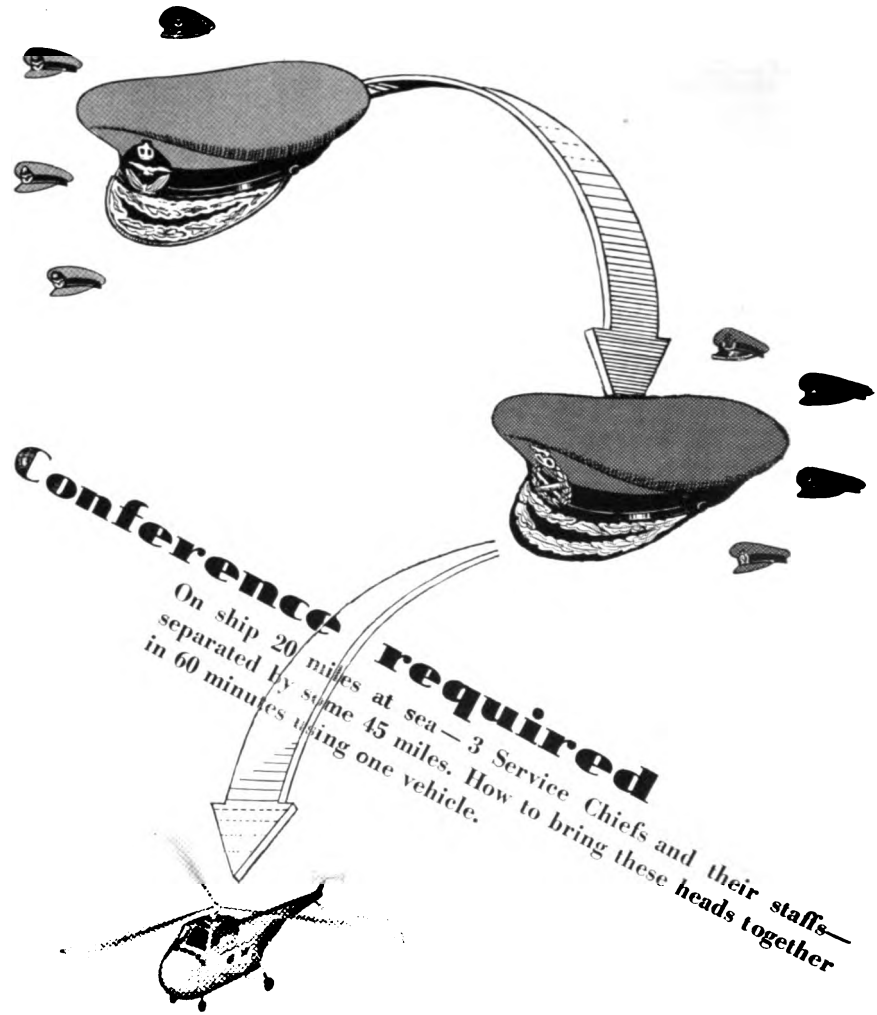

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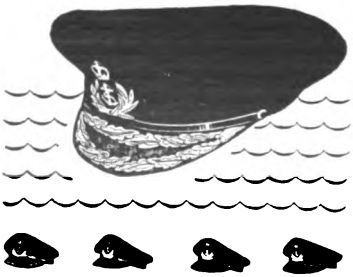

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Crispin's Day. By Leigh Howard. Longmans Green & Co., London, 265 pp. 10s. 6d.

To the numerous books of factual accounts of Royal Air Force operations, life in that Service and acts of heroism by officers and men, has been added a new fictional story. It deals with life in the Air Ministry Operational Film Unit, and in particular the flight to film the damage after the raid on the Mohne and Eder dams. The hero is the navigator film operator. To those who have served a normal career in the R.A.F. and known their Service in peace and war, it will cause some astonishment, that anyone who had the honour to serve, even if only temporarily during war time, as an officer in the finest service in the world, could obtain such a warped view of personnel of the R.A.F. and W.R.A.F.

If it is an attempt at a parody of life in the R.A.F. it fails. By stressing excessive drinking by officers, nauseating sex attractions between not only an R.A.F. officer and a W.R.A.F. officer, but what is worse, more details between those of a R.A.F. officer and an airwoman, he cannot fail to damage the good name of the Air Force. The Flying Officer's attitude to those senior to him, indicates clearly that he is "a civilian with a service cap on," making no attempt to march in step or accept simple service principles.

Because the author gained a Distinguished Flying Cross, the temptation to throw this book on one side after reading two chapters will probably be resisted. By continuing it will be found that in places this book is not unamusing: the outward flight to film the Mohne and Eder dams is well written, but the return journey, piloted by the flying officer navigator (his dead pilot beside him) in a Mosquito at tree-top height, stretches credulity beyond its limit.

The Royal Air Force, like any other Service, is not a flawless gem, but this book depicts mainly the flaws and thereby dims the brilliance of this fine jewel.

Those readers who take a pride in their Service, will, when they come to the end of the 265 pages, wish they had followed their first impulse and laid it aside after a couple of chapters.

Yet the *Daily Graphic* selected this as their "Book Find" for the month of February, 1952.

A. H. S.

The Story of the Royal Tournament. By Lieutenant-Colonel P. L. Binns. Gale & Polden Ltd., Aldershot. 155 pp. 15s. Thirty illustrations.

A story of the Royal Tournaments from the time of the Grand Military Tournament and Assault-at-Arms, Islington, in 1880 to the present day. It tells of those early days when the sword, lance and bayonet were the main weapons of the Queen's soldiers, and describes the means by which the Tournament encouraged their skilful use.

The author has traced the growth and progress of the Tournament through more than seventy years. He describes the early competitions and the first tentative displays. He tells of the men who have built it up and of the organization behind it.

A list of the champions-at-arms from 1880 to 1951, as well as the amounts handed over to Service charities through the succeeding years, are given in an appendix.

Those who derive pleasure from the representation of the life and work of the three Services, revel in military pageantry, its colourful uniforms and martial music, will enjoy reading this book.

A. H. S.

NEW BOOKS

AIR AFFAIRS

Air Power: Key to Survival. By Alexander P. de Seversky. 314 pp. Illustrated. Reviewed in the April, 1951, number of this Journal, when it was published in America. On 21st April, 1952, it was published in England, with a foreword by Air Chief Marshal Sir Philip Joubert de la Ferté, K.C.B., C.M.G., D.S.O. (Herbert Jenkins Ltd., 3 Duke of York Street, London; 21s. net.) Many will be startled and some will be shocked by his theory of inter-hemispheric air strategy, but a newer generation of airmen will welcome it. The future may prove him to be absolutely right in his main contentions, and he will have a place in military history beside Mahan and Clausewitz. Every air force officer would find this book of absorbing interest.

The Aeroplane Directory of British Aviation (Incorporating Who's Who in Aviation). 1952 Edition. A complete guide to aviation throughout the British Empire, its air forces, ministries, organizations, airlines, industries, flying clubs and aerodromes, together with a biographical section containing over 1,500 entries. (Temple Press Ltd., London; 424 pp.; 15s. net.)

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The Air League Aircraft Recognition Manual. By C. H. Gibbs-Smith. (Putnam & Co. Ltd., London; 241 pp.; 10s. 6d. net; fully illustrated.)

The Military Aircraft of the U.S.S.R. By Charles Cain and Denys J. Voaden. (Herbert Jenkins Ltd., London; 72 pp.; fully illustrated; 3s. 6d. net.)

How and Why of Aircraft and Their Engines. By J. H. Stevens and M. F. Allward. Edited by F. N. Hillier, Secretary-General, Air League of the British Empire. (Putnam & Co. Ltd., London; 124 pp.; fully illustrated; 10s. 6d. net.) This is a book for air enthusiasts without advanced technical knowledge who want to master the basic facts about how aeroplanes fly and why they work.

Aircraft Gyroscopic Flight Instruments. New edition. (Sperry Gyroscope Co. Ltd., Brentford; 84 pp., fully illustrated; 3s. 6d. net.)

Civil Aircraft Markings. By John W. R. Taylor, author of "Wings for To-morrow," "Spitfire," "Ian Allan Aircraft Annual," etc., and many leading articles in the R.A.F. Quarterly. (Ian Allan Ltd., London; 72 pp.; 40 illustrations of civil aircraft; 2s. 6d. net.)

Air-Plane Fight. By A. York Bramble, M.R.S.T., F.R.Met.S., A.R.Ae.S., with a foreword by Lord Brabazon of Tara. (Sir Isaac Pitman & Sons Ltd., London, 22nd April, 1952; 366 pp.; illustrated; 35s. net.) A complete study of flying in the "heavier-than-air" type of machine, is treated in a novel way. A veritable encyclopedia of aeronautical knowledge. It takes readers from kites to jet-aircraft and provides information at every step, made easy to understand by the use of numerous diagrams.

The Soviet Air Force. Second Edition. By Asher Lee, O.B.E. (Gerald Duckworth & Co., London; 227 pp.; 10s. 6d. net; twenty illustrations.) Contains information useful to those wishing to form a background picture of Russia's Air Force, aircraft, industry and people. In this Second Edition the last chapter, "The Post-war Decade," has been entirely re-written to bring it up to date.

Theory and Technique of Soaring. By John Kukuski. (Sir Isaac Pitman & Sons, London; 183 pp.; 25s. net.) For those interested in gliding, this book is a guide to the various phenomena that are encountered in soaring. Illustrated with numerous line drawings. The subjects dealt with include meteorology, instruments, the mechanics of soaring, glider design, the technique of soaring—launching, landing, circling and soaring in various conditions.

DEFENCE

East versus West. By Lieutenant-General Sir Giffard Martel, K.C.B., K.B.E. (Museum Press Ltd., London. 217 pp.; 12s. 6d. net; published March, 1952.) The author, a well-known authority in Military Affairs, sets out most interesting proposals for meeting the dangers with which we are threatened from Russia.

POLITICAL

I Believed. By Douglas Hyde. (First published in 1950, now published by The Reprint Society, London, by arrangement with William Heinemann Ltd., 1952; 285 pp.; illustrated.) An account of how the Communist Party works in England. It describes twenty years of Communist history, with portraits of British Communist leaders. Readers will obtain an insight into the Communist set-up, its dangers to this country and a realization that no true member of that Party has any interest at heart except the Party line emanating from the Soviet Union.

AUTOBIOGRAPHY

Stuka Pilot. By Hans Ulrich Rudel, with a foreword by Group Captain Douglas Bader, D.S.O., D.F.C. (Euphorian Distribution (England) Ltd., London, June, 1952; 280 pp.; 7 illustrations; 12s. 6d.). A story not only of high courage but of endurance which enabled one pilot to undertake 2,530 operational sorties. He was the only member of the German armed forces to receive Germany's highest decoration for bravery.

EDUCATIONAL

Putting it Plainly. By R. G. Ralph, M.A., Ph.D., Tutor in English, Royal Air Force College, Cranwell. (Methuen & Co. Ltd., London; 149 pp.; 8s. 6d. net; published May, 1952.) This book will assist all its readers to express facts in writing. It makes clear the difference between spoken and written English, as well as factual writing and emotional writing. The author's interesting article, "Plain Men and Plain Words," in the January number of the R.A.F.Quarterly, was an earlier example of his ability to give simple and useful guidance in a subject, the knowledge of which is so essential for progress in Service careers.

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JOURNAL

EDITOR
GROUP CAPTAIN A. H. STRADLING, O.B.E., R.A.F. (RET.)
Assisted by an Air Ministry Advisory Committee of members of the Royal Air Force and Air Forces of the Commonwealth

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EDITOR.

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TRAINING THE NEW R.A.F. [See Page 311]

We need 3,000 aircrew a year for our squadrons. Our strength lies in their "quality," not numbers. They give new meaning to the words of Admiral Lord Nelson, at a time when his ships held that same responsibility: "We are few, but we are the right sort." Seen above, their training completed, are a few of the right sort

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EDITORIAL

ONLY by removing poverty, famine, disease and other sources of discontent in every part of the world can we hope for the Millennium: that longed-for day of "Peace with Plenty."

Such hope is no wild dream.

If we can change the selfish materialistic outlook of the minority, there is enough of the good things of this world to meet the reasonable needs of every human being.

To attain permanent peace, the demand for a higher standard of living must be applied *in a universal sense*. We are too parochial in this matter. To devote ourselves to raising the standard of living in those parts of the world where it is most needed is obviously essential, but this alone is not enough. In this perpetual cry of "Equality for All," other important factors are overlooked. We should like to hear an equally loud demand for greater recognition of the value of the individual and *greater independence from alien dictation*. "Equality" is the phoney war cry of those who most threaten the peace of the world today; but it is to maintain the freedom of the individual and at the same time to provide a reasonable standard of living for all peoples, that the Western Powers are now forced into an armaments race with Russia.

Defence forces of a size adequate for this purpose are likely to undermine the national economy of us all. It will also prevent, at least temporarily, the richer nations from using their enormous resources of money and industrial power to alleviate existing poverty, famine and disease.

The cold-war strategy of those who already hold millions of the human race in bondage behind the Iron Curtain has succeeded thus far. They hope by these means to raise such discontent among our peoples that it will facilitate their ultimate aim; to absorb the rest of the world into the bondage of Communist dictatorship.

To hasten the hoped-for collapse of those nations still strong enough to oppose them, they have infiltrated active agents into, and enlisted equally useful "fellow travellers" in these countries, to further increase the undermining of their national economy by fostering discontent, strikes and industrial unrest. In our daily papers we read every day of their success in this campaign. If we continue to be foolish enough to allow freedom of action to those fifth-columnists in our midst, under the cloak of Democracy, allowing them to march under false banners instead of the Star of Russia, then war or ignominious capitulation is inevitable.

As long as the Russians maintain under arms their unnecessarily vast military forces, there is no easy overnight way to peace. It will be a long, hard and weary road.

Pacifists call upon us to disarm. We have already seen in recent years too many examples of the tragic fate of peoples who lacked the military strength to oppose absorption by the U.S.S.R.

To prevent the enslavement of the remainder of the free world we prefer to prepare with what haste we may to defend ourselves and those friendly nations to whom freedom is still dearer than life itself. Our task is not an enviable one. The building up and maintenance of adequate defence forces is a great strain on our resources of money, material and manpower. Without such forces there is little doubt that, if her cold war looked like failing, Russia would not hesitate to

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use her enormous military strength to attain her aim. This strain on the national economy of the Western Powers has come at an unfortunate time; just when we need most to build up the economic life of our peoples.

Never in our history has there been a greater need for us all to "pull together." The consequent burden must be borne by us all, *pro rata* according to our means, and the citizens of these nations must share the load equally among them. There has been a great deal too much criticism of what the other fellow is doing or is not doing. We should examine carefully our own individual efforts before criticizing those of others. Is each and every one of us doing an honest day's work? Could we, in this hour of danger, do more individually and thereby improve our nation's economic position? If we can, let this be our own contribution towards peace and a better world.

In the Services, as in civil industry, it is not only the number of hours that we work daily or weekly which matter, it is what we put into those hours. It is our economical use of this country's military equipment, the avoidance of any kind of waste, whether it be of time, provisions or materials that will count, in giving us the right to say that we are doing our bit to save the world from disaster.

With the exception of those now engaged in trying to thrust Communism on the rest of the human race, peace is earnestly desired by all peoples of the world, irrespective of creed or colour, for them, for their children and their children's children. Most of them within a generation have twice suffered the unspeakable catastrophe of world war and the misery and poverty that followed in the wake of each. For the right for individuals to be free, we poured out our nation's wealth, gave the flower of our manhood in both wars and shared the poverty and misery that followed. Yet we are more fortunate than some. We are still free men. Let us put that freedom to good purpose. Weary of it all, as we may be, the time for that well-earned rest is not yet. With the shadow of war still over us, with doubt and mistrust aroused in this country by Communistic efforts, officers and men of our Services have a wonderful opportunity of giving a lead to the nation and none more so than those of the Royal Air Force. This nation looks to them and relies on them to "pull together" and by so doing once again to pull this country safely through its darkest hour.

Unity is strength and, as our first line of defence, through strength they can give us and the free world the best hopes of peace. These are anxious times, but Britain has faith in her Royal Air Force. Yours is indeed a grave responsibility.

The contents of this publication are the views of the Editor and authors and are not to be construed as carrying any official sanction.

The purpose of this journal is to stimulate healthy discussion of Air Force problems which may ultimately result in improvement of our national security.

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SEA POWER AND AIR POWER

By Air Marshal Sir Robert H. M. S. Saundby, K.B.E., C.B., M.C., D.F.C., A.F.C., F.R.E.S.

FIFTY years ago, before the invention of aircraft, the Royal Navy had been for more than three centuries our first line of defence. Our island situation enabled us to rely on our sea power, and absolved us from the necessity, forced on all other Western European countries, of maintaining large standing armies in time of peace. During the long and mainly peaceful reign of Queen Victoria our army, in strong contrast to the Navy, was at a low ebb. In 1853, when we were anxious about the behaviour of Russia, the Government decided that a full-dress review of the British Army might help to keep the peace. Some 10,000 men were assembled in camp at Chobham, and that was about all that we could raise in this country at that time.

We have never needed large armies for home defence. We raise them only in time of war, as expeditionary forces for service overseas, and we disband them when the war is over.

For more than three centuries the people of this country regarded the Navy as a guarantee that no foreign invader should set foot on our soil. As Lord Anson, First Lord of the Admiralty in the latter part of the eighteenth century, put it: "I do not say that they will not come. I only say they will not come by water." And as long as the only way to reach us was by water, the Royal Navy maintained effective control of the narrow seas that separate us from the Continent of Europe.

In addition, before the rise of air power, our fleets could ensure the safe convoy of our armies overseas, protect our sea communications and cut off those of our enemies. Blockade at sea was then a powerful weapon, and its exercise alone might enable us to deal successfully with nations largely dependent on sea communications.

Three centuries is a long time, and habits of mind which have continued for so long are difficult to remove. In the mental make-up of our people there is a deeply implanted feeling of trust in, and admiration for, the Royal Navy. Even to this day our troops and airmen, when they are in a difficult situation and things are going wrong, murmur half in fun and half in earnest: "Thank God we've got a Navy." This attitude of mind, in itself, is natural and harmless, though there is a danger that the Navy will, perhaps sub-consciously, be expected to carry out its former functions—to protect us from invasion, guard our sea communications and exert pressure by blockade on our enemies. There is a danger of failure to realize that, in these days of air power, the Navy can no longer do any of these things.

It is the purpose of this article to attempt to give some indication of the present-day capabilities and proper responsibilities of the Navy, and to note the way in which these may be co-related with the growing responsibilities of air power.

The Navy can no longer control the seas around our coasts. In fact, the Navy can venture into the North Sea and English Channel in war time only if it is assured of the protection of superior air power. The Navy can no longer, by itself, protect our sea communications or cut those of the enemy. This can be

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done only by sea power and air power acting in concert. Finally, the Navy has nowadays almost no strategic offensive power.

It is sometimes claimed that large, fast aircraft-carriers will be of great value in bringing bombers within range of vital targets. This aspect of the carrier emerged, as de Seversky says in his latest book,* as a temporary substitute for aircraft range. He goes on to say: "In the last war, aircraft-carriers as a genuine fighting element were barred from the Mediterranean, the North Sea, every other point defended by the German Luftwaffe. They did not venture into Japan's home waters until the fourth war year, when we had won nearly complete mastery of the Japanese skies. The spectacular fighting record of our carriers has obscured the most crucial military fact: that in the last war carriers *never* challenged a continent genuinely defended by air force. Nothing has happened since then to justify the belief that carriers will be able to do in the future what they could not do in the recent past. On the contrary, the greatly expanded range and striking power of defending land-based aviation has made the floating base that much more vulnerable. . . ."

This is undoubtedly true and, in any event, the "greatly expanded range" of bombers has made such suicidal attempts unnecessary.

What, then, is the role of the Navy today? In the debate in the House of Commons on the Air Estimates last March, a former naval officer, moving an amendment urging an impartial inquiry into the working of Coastal Command, said that "anti-submarine warfare is, today, almost the Admiralty's sole remaining task." He went on to confuse anti-submarine warfare with the protection of our sea communications and seaborne trade, and argued that the Admiralty should have under its direct control all the forces, including air forces, which are needed for the discharge of that responsibility.

The protection of convoys and the hunting of submarines at sea, whether by means of aircraft, surface vessels, or submarines, is only a part, albeit a very important part, of the safeguarding of our sea routes and seaborne supplies. The danger from air attack on our shipping, from airborne mines laid in our harbours and the approaches thereto, and from the destruction of our docks and their communications by bombing, might well be more serious than the threat from the submarine. Apart from mine sweeping, the Navy can do little or nothing to protect us from these dangers. But they may easily become so menacing as to require the diversion of a large part, or even the whole, of our home-based air power to bring them under control. It is easy to imagine a situation in which almost the whole of the effort of Bomber and Fighter Commands would have to be, for a time at least, devoted to the task of averting these perils.

This fact alone shows the absurdity of the idea that the Admiralty should assume the full responsibility for the protection of our sea-borne supplies, and take possession of all the forces required for this purpose.

In considering the role of the Navy under modern conditions, it must be remembered that, apart from Britain, only the United States Navy has any considerable strength in surface vessels, while the Communist bloc, no doubt, possess a substantial number of submarines and aircraft.

It would seem to me, therefore, that the definition suggested in the debate, to which I have referred, is not very wide of the mark, and that the Admiralty's task, in future, should be the local protection, at sea, of military and mercantile convoys and such part of the hunting of enemy surface vessels and submarines, at sea, as may be performed by warships or ship-borne aircraft.

If this is accepted, then the present organization whereby the Admiralty is

* *Air Power: Key to Survival*

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responsible for ship-borne aircraft, and the Air Ministry for all other aspects of air power, seems to be sound and practicable. And it follows from this definition that the design and equipment of warships, carriers and ship-borne aircraft should be conditioned for this task.

The Parliamentary Secretary to the Ministry of Defence, replying to the debate on the Air Estimates, gave some information about an agreement made between the Admiralty and the Air Ministry in 1946. As few people, I suppose, have the opportunity of reading *Hansard* and as these points have not, as far as I know, received much publicity, they are perhaps worth setting out here.

They are as follows:

(*a*) Where the Royal Navy and the Royal Air Force are working in co-operation, the problem is a joint one, but as such operations are the primary concern of the Royal Navy, the Naval Command in all normal circumstances is the predominant partner.

(*b*) Other units of the Royal Air Force up to the total strength available may be required to undertake tasks connected with the war at sea, such as the fighter escort of convoys, sea mining and tactical or strategical bombing.

(*c*) The proportion of the total existing and potential strength of the Royal Air Force which shall be specifically equipped, allocated and trained to meet world-wide maritime commitments will be laid down from time to time by the Government, acting on the advice of the Admiralty and the Air Ministry.

To sum up, the coming of air power has greatly curtailed the responsibilities of the Royal Navy. It is no longer our first line of defence and indeed its role, though vitally important, is now secondary and almost completely defensive in the strategic sense.

In the protection of our sea communications and our seaborne trade, both the Navy and the Air Force have a great part to play. With regard to the Navy, this task will normally absorb the whole of its resources. And, as we have seen, there may be times when a very large part of the effort of the Air Force will have to be diverted to this defensive role. A diversion on this scale would, however, have very serious consequences on the conduct of any war in which we might be engaged and, if unduly prolonged, would be bound to prejudice our chances of victory.

The growth of air power to the point at which it dominates warfare on land and at sea has made obsolete most of the "classical doctrines" which grew up during centuries of two-dimensional warfare. These doctrines, so long accepted as axiomatic, are no longer valid, and it is necessary to go back to the unchanging principles to formulate new ones.

And underlying any such reconsideration of the doctrines of war must be the realization of the unity of the air. It is true that the sea is one, but the air ocean transcends the oceans of the sea; it lies over the whole world and knows no shores or barriers. And, in war, the air situation must always be considered as a whole and not by areas or zones, or in terms of sea warfare or land warfare. The whole essence of air power is its ability to concentrate its full effort, when required, at the decisive point. Therefore the control of air power must be centralized, and it would invite disaster to divide it into separate packets.

The unity of the air ocean dictates the unity of the air power that seeks to control it.

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done only by sea power and air power acting in concert. Finally, the Navy has nowadays almost no strategic offensive power.

It is sometimes claimed that large, fast aircraft-carriers will be of great value in bringing bombers within range of vital targets. This aspect of the carrier emerged, as de Seversky says in his latest book,* as a temporary substitute for aircraft range. He goes on to say: "In the last war, aircraft-carriers as a genuine fighting element were barred from the Mediterranean, the North Sea, every other point defended by the German Luftwaffe. They did not venture into Japan's home waters until the fourth war year, when we had won nearly complete mastery of the Japanese skies. The spectacular fighting record of our carriers has obscured the most crucial military fact: that in the last war carriers *never* challenged a continent genuinely defended by air force. Nothing has happened since then to justify the belief that carriers will be able to do in the future what they could not do in the recent past. On the contrary, the greatly expanded range and striking power of defending land-based aviation has made the floating base that much more vulnerable. . . ."

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VICKERS VARSITY

The R.A.F.'s new crew trainer, superseding the Wellington at Advanced Flying Schools. Pannier under fuselage contains bomb-aiming position and bomb bay. Has two 1,950 h.p. Hercules engines, wing span of 95 ft. 7 in., loaded weight of 37,500 lb., and cruising speed of 240 m.p.h.

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TRAINING THE NEW R.A.F.

By John W. R. Taylor

REGULARLY throughout the past year student aircrews of No. 201 Advanced Flying School at R.A.F., Swinderby, Lincs, have clambered into their twin-engined Varsity aircraft and set out on five-hour night training flights over the Continent. To near-by villagers it is all very reminiscent of the Second World War, when Wellington and Lancaster bombers took off night after night from Swinderby to blast Hitler's Fortress Europe; the more so because the Varsity inherits the tapered wing-form, Hercules engines and shark-like fin of the old Wellington, so that the two look very similar against a background of moonlit cloud.

It is even more realistic to the young airmen who take part in these night operations, which are planned and carried out exactly like genuine operational missions. As their aircraft cross the coast on the far side of the Channel, anti-aircraft and fighter defences of Western Europe engage them in mock battle as part of a general training plan for all N.A.T.O. forces.

This high standard of realism and thoroughness is typical of present-day Royal Air Force training. With 3,000 new aircrew a year needed to keep squadrons at full strength, there is no time for unnecessary "frills." Neither can training be skimped, for our superb new 650-m.p.h. jet fighters and super-complex, costly atom bombers will be only as good as the men who fly them.

Korea has provided further proof of this, for the Communist MIG-15 fighter is equal in performance to the American Sabre and has tremendously powerful armament, yet its losses are eight times greater than those of Sabre squadrons because its pilots are less well trained. This fact is of the greatest importance because, as in 1940, the Royal Air Force cannot expect to outnumber its potential enemies. It can only hope to outclass them in the excellence of its equipment and the skill of its aircrews. The British aircraft industry will ensure the former with its new super-priority Hunter, Swift and Spearhead fighters, Canberra and Valiant bombers, and their even more formidable successors. Flying Training Command is being reorganized and expanded to ensure that its graduates are, as always, worthy of their aircraft.

NEW TRAINING SCHOOLS

Altogether, thirteen new R.A.F. flying schools have been opened this year, simultaneously with the introduction into service of new types of training aircraft. In this respect it is significant that in post-war years, when the Service had to economize by "making do" with existing types of fighter and bomber aircraft, it maintained its tradition of sound training by ordering into production the basic, advanced and operational trainers with which Flying Training Command is now being re-equipped.

Before going farther, it is essential to understand that the R.A.F. is receiving nowadays two distinct and quite different classes of aircrew candidate—the National Service man and the Regular airman. The former is in the forces for only two years: it is therefore necessary to concentrate on his flying training at the expense of "officer training," to ensure that he spends some time with an operational squadron before leaving the Service. To relieve part of the burden of expansion on Regular R.A.F. flying training schools, a number of civilian

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[Air Ministry Photo

DE HAVILLAND CHIPMUNK T.10

Standard basic trainer at privately run basic flying training schools and R.A.F. Reserve flying schools. A fully aerobatic light two-seat dual control aircraft, with 145 h.p. Gipsy Major 8 engine, designed as a replacement for the well-loved Tiger Moth biplane. Span, 34 ft. 4 in., loaded weight, 2,000 lb., maximum speed, 138 m.p.h.

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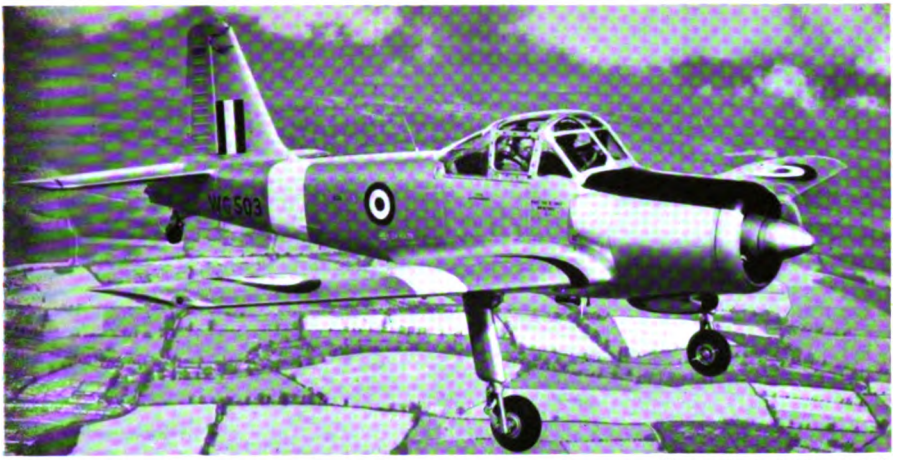

[Photo: Percival Aircraft Ltd.

PERCIVAL PROVOST T.1

Chosen by the R.A.F. to supersede the Prentice, this is a side-by-side two-seat basic trainer, powered by a 550 h.p. Alvis Leonides 2505 radial engine. It is in full production. Span, 35 ft. 2 in., loaded weight, 4,250 lb., maximum speed, 200 m.p.h.

companies have been chosen to run basic flying training schools for these National Service pilots on behalf of the Air Ministry.

Four such schools were opened during 1951 at Booker, Ansty, Derby and Sywell, all equipped with de Havilland Chipmunk trainers. A fifth has now begun operation at Desford, Leicester. Later, more advanced training for National Service pilots up to "wings" standard is given at the newly opened Nos. 9 and 10 R.A.F. Advanced Flying Training Schools at Wellesbourne-Mountford and Pershore respectively. In addition, two new flying training schools—No. 14 at Holme-on-Spalding Moor and No. 8 at Dalcross—are being used for this work.

Regular pupil pilots receive their entire training to this standard at R.A.F. flying training schools, some of them in the United Kingdom and others in Southern Rhodesia. To cope with the expanded training programme, No. 1 Flying Training School has been reopened at Moreton-in-Marsh, and the schools at Feltwell, Ternhill and Cottesmore are working to increased capacity. Standard equipment at all of them comprises Prentice and Harvard aircraft.

The final stages of training at advanced flying schools and operational conversion units are identical for the two classes of aircrew entry. At advanced flying schools pupils who have been selected as fighter and jet-bomber pilots start their jet training, and pilots who will fly piston-engined aircraft in Bomber, Coastal and Transport Commands begin conversion to heavier and more advanced types of training aircraft. Four new day fighter schools were opened in the first half of 1952 to cope with the ever-growing demand for pilots for Fighter Command. Now the advent into service of the Canberra and radar-guided, two-seat, all-weather fighters has necessitated conversion of No. 205 Advanced Flying School at Middleton St. George into an all-weather training unit, and the opening of two similar schools, No. 206 at Oakington and No. 209 at Western Zoyland.

There has been a parallel expansion in navigation training facilities, including conversion of the refresher flying school at Lichfield into No. 6 Air Navigation School and the opening of a further school at Bishops Court, Northern Ireland, in addition to the extension of R.A.F. navigator training in Canada.

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These developments, all of which have taken place this summer, give an indication of the tempo at which the Royal Air Force is preparing for its new squadrons and new aircraft. Turning again to Swinderby for an example, as many as 3,000 flying hours a month are regularly achieved, thanks to No. 201's new Varsities. These aircraft are so much easier and more pleasant to fly than their predecessors, the demilitarized Wellington 10's, that the wastage rate of student pilots has dropped. In addition, elements of two crews can be trained at once in the Varsity's roomy fuselage. So, despite its higher power, it is more economical to operate than a Wellington. Paradoxically, because its Varsities are being operated so intensely, Swinderby is said to cost more to run than any other Royal Air Force station: but it is money well spent.

SEQUENCE OF TRAINING

Training programmes for Regular and National Service pilots are generally similar. Both classes enter first an initial training school, graduate to flying schools where they complete sixty hours on basic trainers and 120 hours on more advanced types, and then pass on to advanced flying schools and operational conversion units. Main difference is in the types of aircraft flown during basic training. In addition, until recently National Service pilots could be trained only to fly fighters; but some are now able to train for service with Canberra light bomber squadrons also.

INITIAL TRAINING SCHOOLS

The task of the initial training school, in brief, is to bring the many and varied young men who offer themselves as R.A.F. aircrew up to the standard necessary to begin flying training two days after entering their flying training schools, or

(Photo: Boulton Paul Aircraft Ltd.

BOULTON PAUL BALLIOL

Soon to replace Harvards at R.A.F. Flying Training Schools, the Balliol is a high-performance, aerobatic, side-by-side two-seater, with a 1,280 h.p. Merlin engine. Its wings fold for easy stowage and it can carry bombs and guns for weapon training. Being built by both Boulton Paul and Blackburn. Wing span, 39 ft. 4 in., loaded weight, 8,410 lb., maximum speed, 288 m.p.h.

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to begin navigating an aeroplane two weeks after arrival at an air navigation school. As a result, time spent at an initial training school is seldom remembered as the most carefree part of a pilot's training, despite occasional flying displays, "familiarization" flights in training aircraft and, for the lucky few, glider instruction to break the routine.

Nevertheless, this is perhaps the most important stage in the production of an efficient airman. It provides the groundwork which ensures that when a young man reaches his operational squadron he is not only a good pilot (his flying training school and advanced flying school will see to that!) but also a first-class officer, able to lead his men in action and display initiative at the right time.

The average "raw material" is a young man of about 20, with secondary school education. But there is a smattering of public schoolboys and a fair number of excellent R.A.F. apprentices from Halton and elsewhere, of ages ranging from 17 upwards. All are, of course, volunteers, some direct from civilian life, some from ground trades of the R.A.F. and some from the other aircrew categories of signaller, engineer or air gunner. To transform all these men into potential officer pilots the initial training school has eighteen weeks. Obviously, training must be intensive, especially as it covers such a wide range of subjects in four main categories:

General Subjects.—English; Commonwealth Studies; History of the R.A.F.; Preliminary Calculations and Aeronautical Science.

Service Subjects.—General Duties Training, including R.A.F. Law, Administration and Organization, Drill and Ground Combat.

Professional Subjects.—Navigation; Meteorology; Airmanship; Aerodynamics; Radio and Aero Engines.

Development of Physique and Character by Leadership Exercises, Officer Training, Physical Training and Sport (including such varied things as land yacht racing and archery).

Particular attention is paid to the last of those four categories. Senior cadets of each course—those in their final four weeks—are allowed to live as officers in officer-type quarters, with a mess run on officers' mess lines. The leadership exercises test their initiative and self-reliance to the full, as they usually involve leading a squad of men in a guerrilla attack on a near-by village or the organization of an underground movement in an "enemy-occupied town."

Deservedly, cadets who pass their initial training school course are commissioned as acting pilot officers on probation, and graduate to flying training schools or air navigation schools, as appropriate.

BASIC AND ADVANCED FLYING TRAINING SCHOOLS

As already mentioned, Regular and National Service pupil pilots go their separate ways on leaving the initial training school, the latter going to a civilian-operated basic flying training school. Typical of these is No. 1 Basic Flying Training School at Booker, Bucks, which is run by Airwork Ltd. About twenty students attend each course, which lasts twelve weeks. General service ground training is by no means forgotten—in fact, the officer commanding is an R.A.F. squadron leader, who is responsible for discipline, instruction in Service matters and over-all supervision of the school to ensure that it is run on Service lines. But the emphasis shifts inevitably to flying training, in the form of both lectures and demonstrations on the ground and sixty hours in the air in Chipmunks fitted with dual control, radio and standard blind flying instruments; all under the capable eye of Airwork's chief instructor.

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[Air Ministry Photo

GLOSTER METEOR T.7

Operational trainer for fighter pilots at R.A.F. Advanced Flying Schools. Despite its high performance—speed of 585 m.p.h., initial rate of climb 8,000 ft./min.—is comparatively docile to fly. Powered by two 3,500 lb. thrust Rolls-Royce Derwent 5 turbojets. Span 37 ft. 2 in., loaded weight, 14,140 lb.

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[Air Ministry Photo

AIRSPEED OXFORD T.2

Standard twin-engined trainer at R.A.F. Advanced Flying Training Schools, where National Service officers complete their flying instruction up to "wings" standard. Powered by two A.S. Cheetah 10 engines, each developing 355 h.p., wing span, 53 ft. 4 in., loaded weight, 7,600 lb., maximum speed, 188 m.p.h.

Cadets who successfully negotiate this hurdle pass on to an R.A.F. advanced flying training school to qualify for their "wings." This takes a further six months and involves 120 hours' flying on single-engined Harvard and twin-engined Oxford trainers.

FLYING TRAINING SCHOOLS

While all this has been going on, the Regular cadets will have been completing this stage of their instruction at an R.A.F. flying training school. They, too, will have done sixty hours' "basic," on Prentices, followed by 120 hours on Harvards —the same total flying time as the National Service men.

Afterwards, complete with newly won "wings," they join the National Service pilots on the final stages of training at an advanced flying school and then an operational conversion unit. Time spent at these depends, naturally, on the type of Service squadron the pilot will eventually join.

ADVANCED FLYING SCHOOL

Reference has been made earlier to some aspects of training carried out at the multi-engined advanced flying school at Swinderby. Fighter training is every bit as intense, a typical unit being No. 205 Advanced Flying School at Middleton St. George, Yorks, equipped with Meteor Mark 7 two-seat jet trainers.

Pupils might well be excused a feeling of trepidation at the thought of

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progressing in one step from a 200-m.p.h. Harvard to a 550-m.p.h. Meteor; but experience has shown that the transition is nothing like as frightening as one would expect. Indeed, most pupils are skilled enough to fly solo on a Meteor Mark 4 after four or five hours' dual on a Mark 7: but Fighter Command demands more than mere competency and the embryo fighter pilot has to complete twenty hours' dual before he is considered properly trained.

No time is lost, however, in giving each pilot his twenty hours' dual and thirty hours' solo flying. In good weather Middleton handles up to ninety landings and take-offs an hour, and a near-by satellite field makes the total even more impressive. Needless to say, this can only be achieved by first-class ground handling, and groundcrews at Middleton have developed a system a rapid refuelling and servicing which gets a Meteor airborne again within fifteen minutes of landing.

Particular attention is paid to aerobatic training and instrument flying, and pupils are left in no doubt of the necessity for a modern fighter force to be able to operate in all weathers. Ground training is equally intense, and covers a wide variety of subjects, including airframe and engine construction, problems of high-speed high-altitude flying, airmanship, navigation, air traffic control, meteorology, signals, aviation medicine, aircraft recognition and physical training. The need for complete fitness is particularly stressed. A fighter pilot with a cold in the head, for example, is useless, as a 500-m.p.h. dive from height would cause him intolerable pain in the ears.

By the time he leaves the advanced flying school the student has therefore developed into a highly competent pilot. All that remains is for him to learn the finer points of the operational aircraft that he is to fly in service, at an operational conversion unit, and then to complete his tactical and weapon training.

INSTRUCTING THE INSTRUCTORS

The full sequence of training is, as it seems, both long and costly. Indeed, a fully fledged fighter pilot represents about £15,000 of the taxpayer's money: the aircraft he flies in service probably represents a further £30,000. But this is only half the story. It makes no reference to the civilian training to private pilot's licence standard that Air Training Corps cadets can receive before entering the Royal Air Force; or training of navigators after they leave initial training schools; or training of signallers, gunners or engineers; or, most important of all, training of R.A.F. flying instructors at the incomparable Central Flying School and training of R.A.F. weapon instructors at the Central Gunnery School.

All these, and more, play their part in ensuring the quality of the Royal Air Force, Britain's new first line of defence and spearhead of attack. They give new meaning to the words of Admiral Lord Nelson, at a time when his ships held that same responsibility: "We are few, but we are the right sort."

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EXERCISE "CASTANETS"—CONVOY ASPECT

By Rear-Admiral H. E. Horan, C.B., D.S.C., R.N.

DURING the last fortnight in June this year a large-scale sea and air exercise, in which both ships and aircraft of the N.A.T.O. powers took part, was carried out in the waters surrounding the British Islands. The object of this exercise was to give a thorough test to the arrangements for the defence of the sea communications in these waters.

Everyone knows that in the event of war these sea communications are vital not only to the people of the United Kingdom but also to all the forces of the N.A.T.O. powers which may be engaged in waging the war on the Continent of Europe. The latter depend almost entirely for their reinforcements and supplies on the shipping of the Allied Nations, and the threat to our sea lanes is very real when one studies the sea and air power at the disposal of the potential enemy.

This threat to Allied shipping arises from the fact that the enemy have in their possession ships capable of acting as surface raiders in addition to large numbers of submarines and aircraft. Each and all are fitted with the offensive weapons appropriate to them and, in addition, they can lay mines. Russian strategy is well known for the faith it has in a "mining offensive," and so special precautions must be taken to guard against its use. In this short article it is not proposed to go into detail concerning the various methods designed to deal with the many menaces to our shipping but rather to give an account of what it felt like to be in a ship in a convoy during the exercise. It is hoped that in this way the reader will be able to judge for himself how both the N.A.T.O. navies and air forces cope with the formidable task they have to face.

The writer was told by the Admiralty that he would be "required for service" during the latter half of June, and duly received an appointment. To his great delight it was a sea-going job in one of the convoys. At his home this news produced a scene of furious activity in order to get some uniform together, but at last this was successfully accomplished. The result was very gratifying as the uniform had not "shrunk" with the passage of the years.

He was ordered to report at Port "X" and on arrival there the first thing to be done was to get familiar with the new signal books and learn something about the technique of convoy work. It was very surprising to find that little or nothing had been changed since the last war. Of course, on reflection, this at once appears logical. There is very little that can alter in sea warfare as the principles are always the same; it is only the application of these principles that change.

CONVOY CONFERENCE

The evening before the convoy was due to sail a conference was held at the local Maritime Headquarters which was attended by the Commanding Officers of the surface escorts and the Masters and Chief Engineers of the ships in the convoy. Here the various staff officers of the Commander-in-Chief's staff "put everyone in the picture," and the way this was done gave a feeling of confidence as it was obvious that the officers who spoke knew their job. The Royal Air Force was represented by officers from Coastal Command who were equally clear and

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explicit. On leaving the conference one of the Masters was heard to remark that "at any rate we all know what we have to do and how to do it."

After the conference the ships assembled in the convoy anchorage in preparation for an early start.

CONVOY AT SEA

At the crack of dawn the convoy weighed and proceeded "down the swept channel." Here was the first breath of war routine. This channel had been swept prior to the convoy leaving and carefully marked to show the water which was clear of mines.

When clear of this channel the convoy took up its cruising formation and set course along the route ordered. At the same time the surface and air escorts took up their positions and proceeded to screen.

What struck the writer very forcibly was that he was at once at home with everything that was going on and, as far as he was concerned, might not have spent the last six years "on the beach."

The weather was typical—a slight drizzle with a fresh westerly wind—and the ship soon began to "lift" to the usual swell. It was ideal weather for a submarine "attack" and sure enough this came off. To avoid the menace entailed manœuvring the convoy by "emergency turns." These were carried out by all the ships as to the manner born; they might have been doing it every day of their lives. It was noticeable how signals were taken in and obeyed by the ships of the several nationalities. The signal book is a form of universal language and training as a seaman is the same for all nations.

The evolutions of the surface and air escorts were interesting to watch, and it was quite apparent that the co-operation between them was very close; in fact, it appeared that intuition played a large part in their work. Admiration was expressed for the way that the aircraft, being very much at the mercy of the wind—a rather unknown factor—kept finding the convoy after they had been absent from it for some time.

The question of being able to recognize friendly from enemy aircraft gives the personnel in the convoy a feeling of considerable anxiety. To identify by eye an aircraft which is dodging in and out of cloud is practically impossible. To wait until one is sure whether it is friend or foe before opening fire may well mean disaster to one's ship. With the meagre methods of controlling gunfire available in a merchant ship the only answer seems to be to regard any aircraft approaching as an enemy and to shoot at sight. Perhaps the powers-that-be will evolve some method of recognition and so avoid "unfortunate incidents." But this is a very real problem.

With the advent of darkness the escorts became invisible. However, from time to time the surface escorts exchanged signals and the convoy knew that the aircraft was still on the job by seeing parachute flares being dropped on different bearings.

Ships and their escorts joined and left the convoy from time to time, and the way they made contact and took up their stations was very creditable, the more so because they were often of different nationalities. This all speaks well for the previous exercises in which ships of the N.A.T.O. nations have taken part.

For the first two days of the exercise the weather was good, but on the third day it came on thick with a westerly wind and a nasty choppy sea. This was the day chosen to refuel the destroyers from the tanker in the convoy. This evolution has been brought to a fine art, and is remarkably quick, but does entail care in the handling of the convoy to avoid sudden large alterations of course. It was

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noticeable how during the refuelling the sea and air escorts doubled their vigilance.

But, just as dusk was coming on, a submarine "attack" developed. It was a really brilliant piece of work. The "attacker" deserved to have scored several hits as it must have been a very tricky matter to have avoided the viligance of the screen.

Through the night that followed the weather deteriorated still further, and the presence of fishing vessels forced the convoy to alter course on many occasions. In spite of this, at daylight another submarine "attack" took place. One could not help feeling that the attacker had kept touch with the convoy throughout the night and again would have deserved his success on account of his good "shadowing."

As the convoy approached the coast of England the visibility became very short with low thick cloud. This, of course, militated against any defence from the air and the general feeling was one of nakedness. One had come to look on the air escorts as an integral part of one's protection and their absence was felt. However, the surface escorts carried out several "hunts" and no further submarine attacks developed.

When the convoy reached narrow waters the weather cleared and at once a new form of "attack" was experienced. This came from fighter aircraft. From the convoy point of view this form of "annoyance" is very disconcerting. The first thing that happens is that you hear the sound of the aircraft and by the time you have got it located the "attackers" are upon you. Their tactics are much to be admired as the speed and cohesion of the attack denotes that it has long been practised and the drill is perfect. Standing on the deck of a merchant ship there appears little or nothing that can be done about it except let off everything you have got in the hope of hitting something. Here again if friendly aircraft are in the vicinity the question of recognition looms large. Also perhaps if the surface escort could in some way give some form of warning there would be a hope that the "attackers" would meet a warmer reception.

On approaching Port "Y"—our destination—signals were received that mines had been discovered in the channel. To have come safely through the perils of an ocean passage and then to be mined within sight of one's destination seems the height of bad luck. But the hazard undoubtedly exists, and it is only by unremitting care and attention that this mine menace can be eradicated. However, the sweepers soon cleared a safe channel and duly the voyage ended without further incident.

CONCLUSION

Exercise "Castanets" has only been dealt with from the point of view of those who went to sea in the convoy. Perhaps after all this is an important aspect because it is the views of those who are being protected and on whose safe and timely arrival so much depends.

The most lasting impression of the exercise is the feeling of confidence which all in the convoy had in their "protectors." This started from the Convoy Conference and was increased by the way the escorts, both sea and air, operated and acted in close co-operation. To those with convoy experience in the last war it was very clear that the integration of the Royal Navy and the Royal Air Force in convoy work had made great strides.

After all, the problem facing the sea and air escorts in controlling sea communications is to be able to bring sufficient force to the decisive point—the convoy—to eradicate any attack. In fact, it is the old principle of being able "to locate and report, attack and destroy any enemy met with."

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During the course of the exercise the convoy whose fortunes have been followed, had at various times ships of Danish, French, Norwegian and Portuguese nationalities either in the escort or forming part of the convoy itself. That every one of these knew their job speaks volumes for the work that has been done by the organization known as Supreme Headquarters Allied Powers, Europe. The task has been complex, but the state of efficiency reached by the forces of the N.A.T.O. powers in so short a time augurs well for the future.

Of course, at sea one did not know how the co-ordination of effort and control was exercised, but it all seemed to run on oiled wheels and no mistakes were apparent.

Judging from one's own short experience of the set-up at Maritime Headquarters, the arrangements appeared to be all that could be desired. But it is quite clear that to get a machine of this size running sweetly from the start means that the "works" must be continually kept efficient and this is only done by organizing large-scale exercises. If at any time "the balloon goes up" there will not be time to train the responsible officers and ratings in their duties and, in the most important thing of all, to get them to work together as a team. This team work is the secret of success and it is only by getting people together that it can be achieved.

The writer would like to place on record the way the officers and men of the Merchant Navy responded to the calls made on them. Each and every one of them took a personal interest in all that was going on. Many had been at sea in convoys in the last war and their remarks were not only illuminating but constructive. Carping criticism was entirely absent and what they wanted most was to "make a good show."

To conclude on a personal note the writer can say that he enjoyed the whole exercise immensely. To find one's self at sea once again was indeed a treat. All the old familiar routine, with the sensation of a ship at sea (even the inevitable black cat) were present. One felt that one had never been out of the Service and that one was doing a job that one liked and knew something about. It was far different from trying to make vegetables and flowers grow, which, of course, is a hidden art only mastered by those who have done nothing else all their lives.

Finally, on mature reflection after the "show" was over, it is abundantly clear that the safest place in the next war will be in a convoy *at sea*. Here with the Royal Navy and the Royal Air Force working as they did as "protectors" in this exercise the maximum security is assured. Further, as severe rationing will be the order of the day "on the beach," the only place that one can get a square meal will be at sea.

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THE PSYCHOLOGY OF AIR TRAVEL

By Squadron Leader J. C. T. Downey

TRAVEL has become firmly established as an aid to education. Since the days when the sons of wealthy men set off on the "Grand Tour" the need to go about the world and see how others live has become widely recognized. But, of course, this is only half the educational value of travel. It is not only what he sees of other lands and other ways of life that gives something to the traveller. It is also the very act of travel itself; the act of severing his roots; the need to plan his movements and his existence as an independent unit, detached from base. This is largely what distinguishes the sailor from the landsman and is beginning to distinguish the airman. Its effect is to be seen in some who travelled during the wars and now cannot settle. In men who sail across oceans alone in small boats. Travel grips the imagination of men for its own sake, not only as a means of going somewhere to do or see something.

Now, I think it very likely that this urge to travel is a strong incentive to young men to take up flying as a career. It is even possible that some men fly to seek an outlet for this urge rather than because of any particular interest in aircraft. The Royal Air Force would be unwise to ignore this possibility in its drive for recruits. Indeed the phrase, "Join up and see the world" is an old recruiting slogan. But what a gross understatement this slogan is when it is used to attract volunteers for aircrew! If only we could invent a slogan that conveyed even a little of the real nature of what we are offering; then there would be no lack of aircrew recruits from among those citizens who feel the need to travel. For I am convinced that, for people with this particular temperament, the job of a member of aircrew is one of the most exhilarating and satisfying occupations that exist. This is because of the peculiar characteristics of air travel. I am sure that we ought to pay more heed to the psychological influence of these characteristics on aircrew and to the way in which they mould the outlook, discipline and training of an air force. I shall try to explain and illustrate these points.

The aeroplane came as a godsend to those driven by the urge to move about the surface of the earth. Here was real travel indeed. Here was a machine that could pick you up at "A" and carry you rapidly to "B" regardless of what lay between. You could literally drop out of the skies at "B" without having come in contact with a soul *en route*. I believe that it was these characteristics of air travel, rather than any particular devotion to the aeroplane, that gave us the Kingsford Smiths and Amy Johnsons of this half-century. The chief incentive to these pioneers was the exhilarating sense of detachment and achievement that came from blazing a trail. The aeroplane provided an excellent and novel way of doing it. But these people must have been gamblers as well as pioneers. They had to find the money or a financial backer for their enterprises. Success meant fame and, perhaps, riches; failure led to poverty and obscurity. The lot of the military aviator is very different for he is most privileged among those who thirst for travel. He is trained and equipped at his country's expense to travel in the most exhilarating way yet invented. He may at any time be told to fly almost anywhere. As a member of a crew he helps to plan and direct all the fascinating details of his flights. He never has to find the money. He is even paid for these privileges.

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It was under this benevolent national patronage that I took part in a flight around the world in 1950. As it turned out, this flight had certain rather unusual aspects which make it a good example of what I mean, when I say that the job of a member of aircrew is one of the most exhilarating and satisfying occupations that exist. Furthermore, it had one particular aspect that did much to confirm my views about the psychological influence of air travel on aircrews. I shall use the planning stage and part of the actual flight to illustrate my points.

The planning of this flight revolved around the fact that we had a long-range aeroplane. It was an old Lincoln embellished with extra tanks, so that, when full, its obsolete airframe groaned under the weight of 4,600 gallons. We were allowed to choose our own route and, since the purpose of the flight was long-range training, we chose one that exploited the range of the aircraft as much as possible. Our idea was to fly to Australia in three hops via Khartoum and Mauritius. The last stage, from Mauritius to Perth, had not been flown before, although the Indian Ocean had been crossed at least twice; once using Cocos Island as a stepping stone and once by way of Diego Garcia. To add interest to the plan we decided to drive the aircraft hard. We reckoned we might get to Australia within 60 hours if we stopped at Khartoum and Mauritius only just long enough to fill the tanks and look at the weather maps. Moreover, this would give an opportunity to learn something about the effects of fatigue on judgment and efficiency.

At first sight this route did not seem to confront our long-range Lincoln with any particular difficulty. But when we got down to detailed planning I think we were all surprised by the problems that arose. There were such things as special weather reports for the Indian Ocean, supplies and facilities at Mauritius and navigation facilities over the unfrequented parts of the route. Our greatest difficulty was to arrange our time schedule to compromise between striking the best and the worst flight conditions on different parts of the route. For instance, we did not expect those 4,600 gallons to help our take-off in tropical conditions; but if we left Khartoum in the cool of the night we should be faced with the prospect of each gallon bouncing about in the tropical front over Kenya.

I quote these various problems as examples of the very essence of the aviator's job. It was both a duty and a pleasure to solve them. Without these or similar problems to solve the flight would have come near to tedium. People who endure the boredom of passenger air travel can have little or no conception of how differently the whole thing appears to the crew of an aircraft. Whenever I see R.A.F. ground tradesmen or boy cadets being herded into passenger aircraft in an effort to encourage them to volunteer for aircrew duties, I seriously doubt the wisdom of those responsible. In my view it may even discourage volunteers by giving them a totally false picture of what the airman really experiences.

For the airman, planning a long flight is hardly less exciting than actually embarking on it. In fact, it is in the process of planning that the workings of the wander-bug are most clearly revealed. I think this revelation is a first step towards understanding properly why the air attracts us and what, in turn, it demands from us. There is something little short of enchantment to be had from poring over maps and charts; from discussing a proposed route in minute detail. The airman looks at a wide ocean drawn on a chart. He draws a pencil line across it from shore to shore and, after a while, he begins to feel like a Columbus or a Magellan. The bends and sweeps of a coastline, painted on a map, spring to life in his imagination until they become more real to him than their physical counterparts. In real life, ocean crossings often mean a good deal of tedious monotony; in the mind's eye they shrink to a short imagined interlude between the magic words "departure" and "landfall."

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The weeks we spent planning were a period of anxious but exhilarating turmoil. The desk and floor of our office were permanently covered with a flurry of maps and charts over which the heads of earnest globe trotters were always bent. Our navigators staggered in and out carrying great piles of instruments and calculating tables. In the evenings our crew littered odd corners of the mess engaged in heated discussion. Our pockets bulged with lists, diagrams, figures and forecasts. We became travel stained from the labour of our preparations but we enjoyed every minute of it. At last we were ready to go.

I have stated the opinion that the characteristics of air travel that appeal to aircrew also influence them psychologically. These characteristics are remoteness and detachment and they throw a much greater weight of responsibility on to the members of an aircrew than is usually borne by soldiers or sailors. Next time you go on a long flight try indulging in a little introspection as you taxi out to the runway. You will find the results interesting. You will find that the surface of the mind is worrying about such things as the oil temperature, or whether it had been wise to take that extra 100 lb. of baggage. But beneath that sort of thing you will be dimly conscious that the moment has now arrived when all your plans are about to be put to the test. Experience tells you that, even if the target is several hours' flying away, you will be fully committed to success or failure as soon as you are airborne. It will then be too late to make any but the most minor alterations to your plans. You will be detached, remote. No air commanders will come alongside to discuss progress. There will be no calms or buoyant patches in the air where you can stop and save fuel whilst you think things out. There will be no good defensive positions where you can dig in until things blow over. There will be no communication cords offering a £5 pull.

Our flight to Australia was particularly characteristic of this aspect of air operations even although we were not facing an enemy in war. We had planned carefully and comprehensively. When we taxied to the take-off point we were committed to a journey that would take us well out of the reach of the help and advice of our base organization. If our planning was faulty the flight would be a failure. As the load came off the wheels and the outer wing sections of the Lincoln creaked upwards, it was as if they took the weight of all our intentions and detailed plans.

I think this peculiarity of air operations, with its undoubted psychological effect, is bound to influence the training, discipline and morale of an air force. Whenever aircraft take off on an operation the crews in them are committed to a detailed plan that they know full well cannot usually be changed in time to influence their chances of success. Moreover, contact with their higher formations is, at best, limited to brief telephonic or telegraphic messages. Very often complete wireless silence has to be observed. In practice this means that at the start of a flight morale is often balanced on a knife edge between the first signs of success and any unforeseen difficulties. As soon as the flight is well under way and all appears to be well, the inevitable reaction sets in and the right sort of training and discipline is then needed to keep things under control during long periods of inaction and fatigue.

This was certainly true of our flight. After we had taken off and set course for Khartoum it soon became clear that we were all set for a fair trip. It was then that faces relaxed and tongues began to wag. The off-duty watch, who had sat in the rear compartment during a heavily laden night take-off, heaved a sigh of relief and picked up their novels. Our chief technician, who worked like a Trojan at each stop, fell into the sleep that he managed to maintain throughout every airborne hour. The working crew began the unhurried routine that characterises the

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fastest form of travel. Our training had adjusted us psychologically to a type of operation in which there would be brief periods of acute anxiety interspersed with long periods of slow routine. Our discipline was informal but, I think, effective. The informality of aircrew discipline is often criticized, but I do not see that greater formality would be well suited to those long periods of routine work in the confined space of an aircraft. No doubt the Army and Navy are right to be more formal since they are often in fierce action for long periods with their men widely dispersed.

I have mentioned aircrew morale in association with training and discipline. Khartoum sticks in my mind as the first testing ground for our morale on this flight, for it was there that fatigue first began to tell. We arrived there after fifteen and a half hours to find that some hitch in the arrangements had delayed the weather reports for part of the next 2,800-mile hop. By a mixture of calculation and guesswork the navigators produced a flight plan and we drove out again through the hot night to our aircraft. The high temperature was doing its best to undo the work of the Sudanese refuelling party; fuel was running from almost every crevice in the wings and fuselage. The glistening round face of "Chiefie" showed up in the light of a torch and announced that "apart from the ruddy venting," everything was alright. Slightly dejected, now, we climbed aboard and started up.

The aircraft rose reluctantly from the runway and we climbed wearily over the dimly seen bends of the Upper Nile. The ponderous "inter-com" routine started again—more difficult now. A voice with a slight edge on it would call for a steady course for 'astro. The second pilot would move irritably round the hot cockpit, brooding over the fuel gauges, checking and re-checking his arithmetic. The novels in the aft cabin lay unopened as the off-duty watch emulated the "Chiefie."

I think our informal brand of discipline stood us in good stead in these circumstances. At the risk of being thought immodest I will say that I think aircrew discipline takes the form of intelligent self-restraint. I do not think that we could have either kept our tempers or remained even reasonably efficient had we copied the rigid automatism of, say, a naval gun crew. As it was we had sufficient difficulty in keeping out of trouble. As we approached the mountains of Kenya, silhouetted now and then by the flashes of the inter-tropical front, our fatigue grew and we became careless with the oxygen. Some of the fuel got pumped out of the forward tanks in mistake for the aft tanks and produced a marked derangement of the centre of gravity. Whilst we were juggling with this small crisis, the 20,000-ft. top of Mt. Kilimanjaro slipped past us in the dark. We were relieved to leave the African coast behind and head out towards the rising sun and the green slopes of Madagascar.

By the time we reached Mauritius we were very tired indeed. We landed with a mighty bounce, taxied in and disembarked for the next round of briefing and flight planning. The weather man apologetically showed us his synoptic chart on which the Indian Ocean was represented by a space almost devoid of weather reports. The ocean now looked much larger than it had done forty hours before. We leaned over the chart, bleary eyed, and were sorely tempted to change our minds and stay that night on the island. Since we had now removed ourselves some five and a half thousand miles from our superior officers we should be temporarily safe from their wrath and scorn. However, we discreetly avoided a public decision on our departure and went and had a shave. After this we felt better and decided to go.

And so off again towards the east and Australia. Once airborne the old feeling of excitement and anticipation returned and fatigue slipped away for a time. Just

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before dawn we were half-way across and felt very isolated. There is no situation that demonstrates more clearly how remote and detached an air traveller can be than the cabin of an aeroplane, at night, in the middle of a fair-sized ocean. The crew sit huddled together in a tiny, dimly lit box, suspended in a black immensity. If they peer through the windscreen they are rewarded by a fine view of the cockpit lights reflected in the perspex. Each of them sits within three feet of his neighbour and a thousand or more miles from the nearest base. So we sat that night and throughout the next day whilst the empty sea and the ever-changing cloudscape drifted slowly past. Shortly after the sun had set behind us, the lights of Perth and Fremantle appeared on the horizon to mark the end of our flight.

I have been describing certain characteristics of the air and their effects on the outlook and employment of aircrews. These characteristics of air operations are, firstly, that they take place in an atmosphere of remoteness and detachment; secondly, that this detachment, together with the speed at which they take place, means that they are dependent for success on pre-flight plans which cannot usually be modified in the air; and, finally, that they subject aircrew to short periods of great stress interspersed with long periods of routine work. The effects of these characteristics on aircrews are, firstly, that the sense of detachment and the need for detailed planning combine to provide an occupation that appeals very strongly to people who already have a tendency to enjoy travel; and, secondly, that the dependence on prepared plans, together with the alternations of acute anxiety and monotony, make morale difficult to control.

Although these factors appear to be rather involved, some of the conclusions that can be drawn from them stand out clearly. I have already suggested that an air force would be wise to give them some attention as a guide to aircrew recruiting, training and discipline. But could these factors throw any light on the more fundamental problems of an air force? I think they could if we gave them sufficient attention. What we lack more than anything else in our position as the youngest Service is a tradition of the air. What traditions we do have are based on a curious mixture of customs borrowed from the older Services. I believe that given half a chance the unique characteristics of air operations will, in time, build up traditions of the air equal to, but different from, the old traditions of the sea. But if this is to come about we must fully recognize these characteristics and realize that they are the roots of our Service from which our thoughts, actions and traditions can grow.

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THE TURKISH AIR FORCE
Cadets at the Air War School, 1952

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KNOW YOUR ALLY

A BRIEF HISTORY OF THE TURKISH AIR FORCE

By Albay Nuri Tesar

THE introduction of military aviation to the Turkish Army was first approved early in 1911. A committee was set up under the chairmanship of Colonel Sureyya Ilmen, of the Second Bureau of the General Staff at the War Office. This committee, attached to the Inspectorate of Technical Units and Fortifications, was entrusted with the organization of the Air Arm.

It was immediately decided that two officers should be sent to France to study aviation. These two officers, selected from many applicants, joined the Blériot School of Flying, and became the first pilots of the Turkish Air Force. Captain Fesa Evrensel received the French Aero Club's Diploma No. 780, and Diploma No. 1 of the Turkish Army.

Whilst our first pilots were having their training in Europe, it was decided to set up a flying school and an aircraft base in Turkey. A suitable site was found in Istanbul, between Yesilkoy and Safraköy. Plans were prepared for the necessary repair shops, stores and schools: air companies were to be formed as part of military units, and with the extension of the organization, these companies transferred to airfields, which were to be built in various parts of Turkey.

The first two hangars were built in 1912, and a two-seater Deperdussin type and a single-seater trainer were purchased and brought to Turkey.

At this time the director of the French R.E.P. aircraft factory came to Istanbul, orders for two planes were placed with him, and eight officers and some technicians were sent to the factory to study aviation. On 23rd April, 1913, a Turkish plane was exhibited, and actually took part, in a parade in Istanbul for the first time.

From 29th September, 1911, until 18th October, 1912, war with Italy cut off communications with the islands and the vilayet of Tripoli, and the Turkish Army strongly felt the need of an air weapon. Requirements had to be met from abroad because of the lack of a local industry. The Italians used aircraft in war for the first time in history, and the Turks captured a plane, piloted by Captain Ricardo Moizo, which had made a forced landing behind the lines in Tripoli.

On 7th May, 1912, a mission, under the chairmanship of the head of the Air Committee, was sent to Europe to buy aircraft, ammunition and bombs, and to find instructors for the flying school in Turkey. The purchase of dirigible balloons to ensure, if possible, contact with Tripoli and the islands, was also under consideration. Fourteen more aircraft, of Deperdussin, R.E.P., Bristol and Farman make, were ordered, after visiting Austria, Germany, France and Britain. French and German pilots and mechanics were brought to Turkey as instructors, and seven officers were sent to the Bristol Aircraft factory for instruction and training.

On 18th October, 1912, immediately following the end of the war with Italy, the Balkan war broke out, which Turkey entered with only the few officers who had returned from completing their training courses in Europe, and little other experience in flying.

The Turkish Army was divided into two groups: the Eastern and the Western

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Armies, and each had an air detachment composed of two aircraft. Five or six more pilots who completed their courses in Europe took part in the second phase of the war. Despite their limited experience in flying, our pilots contributed to army movements on the Catalca front by making reconnaissance flights. Army officers were taken up on reconnaissance in two-seater planes, and it was only natural that they experienced great difficulty, not having been trained for such duty. It was thus found necessary to train air observers, and consequently in May, 1913, relevant courses were added to the school syllabus.

The Balkan war ended on 29th September, 1913, and Turkish aviation, which had experienced two consecutive wars, while yet only in its formative stage, had lost many of its aircraft, as the pilots had insufficient experience in actual combat. At the end of the war Turkish aviation was reorganized, with special emphasis on the question of education.

At the beginning of 1914, a flight from Istanbul to Cairo was arranged. A Blériot and a Deperdussin were assigned for this trip. Pilot Captain Fethi and Observer Sadik flew the Blériot, and Pilot Sergeant Nuri and Observer Captain Ismail the Deperdussin. The trip was planned in fourteen stages. The pilots flew successfully over the Taurus mountains, which was then considered an important event. Captain Fethi's aircraft, however, crashed near the Lake of Taberiya when flying from Damascus to Jerusalem, and both pilot and observer were killed. These two officers were the first victims of Turkish aviation. Sergeant Nuri's aircraft also crashed, into the sea, after taking-off from Jaffa on the last lap of the flight. The pilot was killed, but the observer was rescued. Turkish aviation's loss of three of its valuable members aroused deep regret throughout Turkey. Many dirges were written and a monument, called the "Monument of the Martyrs of Aviation," was erected in Fatih, Istanbul, to their memory. Later the flight was made by Captain Salim Tekugan (pilot) and Captain Kemal (observer) in the Blériot, starting from Beirut on 6th May, 1914, and landing at Cairo.

On 4th May, 1914, a French Captain de Goys was assigned to Istanbul, with the rank of major, to assist in building up Turkish aviation. Many officers were then applying to become pilots, and de Goy's first job was to improve conditions in the flying school. More aircraft were ordered and a Naval Air School was opened at Yesilkoy.

Towards the end of June, 1914, dark clouds began to cover the world horizon. Major de Goys, who had begun to render very valuable service, was recalled to France within a few months of his arrival in Turkey. Most of the planes ordered from France could not be sent to Turkey owing to the outbreak of war in Europe. On 11th November, 1914, Turkey entered the war on the side of the Central States. In February, 1915, a German captain named Serno arrived in Istanbul with twelve aircraft and a number of pilots and mechanics, and was attached to the flying school. Whilst pilots were being trained here, officers were also sent to Germany to be trained as landplane and seaplane pilots. At the same time, planes were bought from Germany, and units formed from these were sent to various fronts. These were reinforced by more German aircraft as their number was insufficient to meet the needs at the front. As a result, Turkish airmen, during the First World War, despite their limited number, lack of equipment and means of transport, rendered very valuable and heroic service in the Straits, Palestine, Iraq, Medina, the Caucasus and Persia. As a result of the defeat of the Central States, the Mondoros Treaty was signed on 19th/30th October, 1918.

But again the Turkish nation could not enjoy the peace which it loved so

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much, because of the occupation of various parts of Turkey by the Entente Powers. As a result of this, the War of Independence began in Anatolia, under the leadership of Atatürk. Air units and depots in Istanbul and Izmir were lost. What planes remained on other fronts in serviceable or reparable state, and a small amount of equipment, were assembled at an airfield which was set up at Konya. Also at that time, some seventeen aircraft, not all serviceable, and some equipment, were smuggled out from Istanbul by air and sea, and an Air Force Inspectorate was established in Konya. But due to the shortage of spare parts they could not be flown.

A detachment known as the First Deachment, comprising three fighter and two reconnaissance planes, was detailed to the Western Front. Another company, the Eagle Company, made up of three fighter aircraft, was sent to Usak. These aircraft were used as fighters, reconnaissance planes and bombers. This company was later named the Second Detachment, and in August, 1920, with the withdrawal of the front, was based on Afyon. It had a gallant record, and particularly distinguished itself in the battles of Inönü.

But these operations were achieved under very difficult conditions owing to lack of equipment, pilots and technical personnel, because of the comparatively heavy losses of the First World War. Maintenance, and particularly repair, had been possible only under great difficulty. Much work was done by ordinary artisans by improvisation. For instance, a sticky fluid obtained by boiling potatoes, the whites of eggs and trotters was used to coat the wing fabric when dope was not available. Serviceability was often reduced to one or two aircraft in each detachment. Despite all this, the pilots, who actually were very few, were never discouraged, even at the most critical and fiercest moments of the fighting, and readily accepted an immediate return to combat on completion of a mission. These detachments were reinforced in 1921 by a number of Breguet-14 and Spad fighters.

The flying school was re-established early in 1923, and in accordance with the agreement reached between the French Government and the Turkish Mission which was on a tour of Europe, French instructors joined the flying school. Two types of trainer aircraft, Codron 27 and 59, were bought from France, and later some Morane aircraft were added to these. Students were sent to France, Britain, Italy and America after 1924. As pilots and technical personnel were being trained, some Breguet 14 and 19, Junkers A-20 and Savoai 16 and 59 aircraft were purchased, and Army and Naval detachments were formed again, and assigned to places of strategic importance. Concurrently, a supply system was also established: a school was opened in Yesilkoy, Istanbul, in 1926, to train the maintenance personnel of the Air Force—the instruction incorporating the knowledge gained from the French instructors and the technical personnel trained in foreign countries.

In the execution of national defence plans the Air Force Inspectorate was subsequently abolished and the air units, attached to the Air Under Secretariat (Air Adviser's Office) for administrative matters, and to the Air Counsellorship, which was set up in the Ministry of National Defence, for matters of supply. They were organized in the form of companies with their own permanent establishments, at Izmir, Eskisehir and Diyarbakir, but under a single organization for supply and administration. In 1932, with the expansion of the organization, new aircraft regiments were formed, with supporting detachments for supply, maintenance, communications and security.

The Air Force was used profitably on many occasions for the preservation of social order.

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From left to right : The Chief of the General Staff, The Commander-in-Chief, Turkish Air Force (General Muzaffer Göksenin) and the Minister of Defence

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American Hawk fighters were purchased, with the progress of the American aircraft industry in mind. The patent rights for this type were obtained, and replacements produced at the Kayseri Aircraft Repair Factory, until the type was withdrawn from service.

In 1935 and the years that followed, the Air Force was reinforced by aircraft purchased from Britain, Czechoslovakia, America and Germany. In 1927, the flying school at Izmir had been transferred to Eskisehir; in addition to this now the technical school at Istanbul moved to the same locality and amalgamated under the title of Schools Command. Air Force training was thereby greatly improved.

In 1937 the Air Academy was opened, in addition to the existing War and Naval Academies.

British instructors began to teach at the Academy, the flying school and other units, and the C.F.S. "Patter" was adopted in flying training. The employment of British instructors continued for many years and proved very profitable in developing the Turkish Air Force.

By 1943 the Air Force consisted of three air brigades, and in that year it was further expanded, and three air divisions were formed. In 1944 an Air Force Command was established within the General Staff, with responsibility for operations, training and maintenance, and in 1950 it took the form of an independent Air Force, though in fact the Chief of the General Staff still maintains controlling authority.

Until 1951 only graduates of the War School were accepted for training as Air Force Officers, but with the opening of the Air War College at Eskisehir in that year, graduates of high schools and universities are now eligible.

THE TURKISH AIR FORCE TODAY

The Turkish Air Force is a unified command under the general direction of the Turkish General Staff. It has its own Commander-in-Chief, Orgeneral

MODERN JETS NOW REPLACING OBSOLESCENT AIRCRAFT
Typical young pilots of today's Turkish Air Force

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Muzaffer Göksenin. The Air Force is in a position to meet the requirements of air defence and to give support to ground and naval forces. It consists of air divisions (corresponding to R.A.F. groups), except that each air division operates both fighters and bombers.

The Air Force has its own air warning system and control centre, educational organization, communications system and maintenance and supply, as well as being responsible for anti-aircraft artillery units in various parts of the country. The flying training establishment, the Air War School, is at Eskisehir and the technical training school at Izmir. The maintenance and training, together with the supply of modern equipment, has been greatly advanced recently by the provision of American aid. Modern jet aircraft are now replacing the late war types of operational aircraft that have been in service for many years.

Thanks also to American aid, airfields have been improved to modern standards. Air Force personnel in all branches are sent to America for specialized training, and on return are employed on instructional duties. American instructors in Turkey also train personnel in the various branches of the Service. An increasing number of Turkish personnel speak English, which greatly helps towards mutual understanding.

On account of Turkey's geographical position, one of great strategic importance, it is essential that she has a strong and efficient Air Force, in order that she may play her full part in the maintenance of peace and security in Europe and the Near East.

THE JANUARY NUMBER

Feature articles, those of a lighter nature, news items of interest to Air Force personnel, letters to the Editor and any other material for publication in the January number of this Journal must be submitted NOT LATER THAN 1st November, 1952, to The Editor, R.A.F. Quarterly, "Chaseley," Eastbourne, Sussex.

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SOUTH AFRICAN PROBLEMS

By Flight Lieutenant J. B. Foreman

ALMOST apt comment on the South Africa of today comes from Mr. Julian Duguid, who recently visited the Union on behalf of the B.B.C. He says: "South Africa is the most fascinatingly difficult country I have ever tried to understand. It has more problems per head of population than any other place in the world. These are neither simple nor reasonable, but profoundly felt emotions with roots in the blood of history."

Let us first make a quick survey of recent events in South Africa and then try to find their "roots in the blood of history." After that we should be better able to understand the problems as South Africans see them.

It is important to understand at the outset that among white people in South Africa there is general agreement about the need for some measure of racial segregation, and for the continued political and economic supremacy of the white man. Dr. Malan's Nationalist Government and the United Party Opposition, led by Mr. Strauss, are as one in their determination to see that the coloured peoples of South Africa never out-vote the whites. Nor can the problem nowadays be resolved into a Boer versus Briton affair. The bitter quarrel between Government and Opposition rages round the vital issues of the integrity of the Constitution, the *methods* of achieving segregation, and the relationship of the Union with the rest of the Commonwealth.

Dr. Malan claims that the Statute of Westminster in 1931 released South Africa from any obligation to stand by the Constitution embodied in the South Africa Act of 1910, since it said that thereafter no Act passed by the United Kingdom Parliament would apply to any Dominion and that Dominions had full power to make their own laws.

One of the "entrenched" clauses of the South Africa Act which Dr. Malan deems invalidated by the Statute of Westminster said that the Union Parliament might amend the Constitution only if a two-thirds majority of both Houses of Parliament in joint session was in favour of so doing.

Matters came to the boil in March of this year when the Appellate Division of the Supreme Court of South Africa ruled that Dr. Malan's attempt to deprive the Cape Coloured people of their vote, framed in the Separate Representation of Voters Act, was illegal since it did not receive the necessary two-thirds majority. The Court further ruled that the provisions of the South Africa Act were not invalidated in retrospect by the Statute of Westminster.

It should be noted here that the Government's majority in the Union Parliament is very small and that its chances of winning the support of two-thirds of the members to amend the Constitution are correspondingly slight. The Cape Coloured people support the United Party, and were Malan to succeed in taking away their vote his party might remain in power for a very long time.

A few days after the Supreme Court announced its findings the Government introduced legislation to make Parliament the sole judge of questions involving its own procedure. This would really mean the end of the Constitution, as the Government could then change any part of it on securing a parliamentary majority of one.

The United Party's alarm over this move is natural, but it is only when we

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remember the type of men who would consequently wield dictatorial power in South Africa that the full gravity of this constitutional crisis emerges.

Dr. Malan's Cabinet is made up almost entirely of old men with long memories that leave little room for love and trust of the British, a consideration to which we shall return later. Malan is sometimes compared with General Hertzog, under whom he served for many years. It was Hertzog who, in 1926, claimed for the Union the right to secede from the Commonwealth and to remain neutral in any war Great Britain might wage. Nevertheless, it was also Hertzog who admitted that to break with the Commonwealth in the face of a great body of hostile opinion would be disastrous for South Africa.

It is doubtful whether this admission would deter Dr. Malan once he had found a way round the constitutional obstacles. It was he and his extremist followers who some twenty-five years ago designed for the Union a new national flag symbolizing secession from the Commonwealth. It was his leader, Hertzog, who said to the Cabinet in 1939: "I am going to remain neutral . . . I am Prime Minister of this country. That is what I have decided upon." Fortunately General Smuts disagreed. It is Malan who today is trying to turn South Africa, through methods of disputed legality, into a Nationalist State outside the Commonwealth, with a single-party system of Government after the Nazi pattern.

The people of South Africa have not remained acquiescent in the face of these recent developments. The vigorous opposition by the United Party in Parliament has had outside support from the unofficial Torch Commando, founded by Group Captain "Sailor" Malan, an Afrikaaner, whose following among ex-Service men and others numbers, perhaps, 150,000.

The primary aim of the Commando is the defence of constitutional government. It does not fight the battle of the Cape Coloured or Bantu peoples, nor does it seek their open support, for any suggestion of a demand for voting rights for Africans would ruin the cause of both the Commando and the Parliamentary Opposition. The United Party is particularly anxious that no bloodshed should arise from the demonstrations by Africans at any of the meetings organized by the Commando, as the Government would then have justification for carrying out its threat to call in the police and ban all political meetings.

The people of Natal, very few of whom are of Dutch descent, have reacted so violently against Malan's repudiation of the Supreme Court's authority that it seems probable that the Province will consider breaking away from the Union should the Government persist in its present policy. Natal was the last Province to agree to join the Union in 1910 and did so only after being given definite assurances that the entrenched clauses of the Constitution would be honoured whatever happened.

Intermingled with all this constitutional trouble is the problem of "apartheid" or racial segregation, although it is not in itself one of the main points of difference between the two major political parties. Apart from the white people, there are three main racial groups.

The Bantu peoples, including Zulus, Basutos, Bechuanas and Swazis, outnumber the 2,500,000 whites by nearly four to one. Rather less than half of the Africans still lead a traditional tribal life on reserves controlled by native chiefs. Farming is their main occupation, but some go to the gold and diamond mines for spells, returning to the reserves when they have grown tired of the shanty towns. More than 4,000,000 Bantus, on the other hand, have broken away permanently from tribal life and are now the main source of unskilled and semi-skilled labour in all provinces except the Cape of Good Hope.

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In Cape Province the unskilled jobs are filled by Cape Coloured people, a mixed race descended from the Hottentots and Bushmen and slaves from the Dutch East Indies, with a few traces of white blood as well. They number about 1,000,000, speak either Afrikaans or English in corrupted forms, and are generally of poor education and physique. As a result, they are easily stirred by political propaganda and many turn to crime.

The 323,000 Indians in South Africa are mostly storekeepers and artisans. They usually make a great financial success of these occupations since, accepting a lower standard of life than the European, they can undersell the white man. Although their numbers remain small, the Indians' facility for accumulating wealth is making their presence felt socially, and also politically through the South African Indian Congress.

The story of how Afrikaaner, Briton, Bantu, Cape Coloured and Indian became interlocked in the jig-saw of present-day South African politics is long and complicated, but fascinating. In few countries is history so directly related to current developments, and serious study of the historical background is absolutely essential to an understanding of the social and political problems in the Union. A few signposts planted here may guide further reading.

The central historical figure in the recent celebrations which marked the tercentenary of the first European settlement in South Africa was the Dutchman, Jan van Riebeek. He was not, however, inspired by any romantic visions of empire. He was sent to the Cape by the Dutch East India Company in 1652 to set up a fort and cultivate sufficient land to provision Dutch trading vessels on their voyages between Europe and the East Indies.

Thirty-two years earlier, two English captains had proclaimed the sovereignty of James I over Table Bay and the whole of the adjoining continent, but the British East India Company preferred St. Helena as a provisioning base and the Cape was left to the Dutch. They can, therefore, claim to be the first white settlers in South Africa.

Cape Town, captured by the British in 1795 and returned to the Dutch by the Peace of Amiens in 1802, was again occupied by Britain in 1806. At the settlement in 1814, following the Napoleonic Wars, Britain kept the Cape by paying an indemnity of £6,000,000. Naval strategy, not colonization, was Britain's motive in acquiring the territory. At this time the white population numbered 26,000.

An early clash with the Boers resulted from the abolition of slavery throughout the Empire. Measures to give the Hottentots equality with white men had already been applied in Cape Colony, largely as the result of agitation by overzealous missionaries, whose narrow view of African affairs appears to have been at that time accepted as suitable Colonial Office policy without any further investigation or advice. The results were intensely irritating to the Dutch settlers, who suffered even more from the Act of 1833 abolishing slavery. Compensation totalling £1,250,000 was awarded for the release of the slaves, each claim to be proved and paid in London. The Dutch owned about 39,000 slaves, valued at nearly £3,000,000, and they had no facilities for settling their claims in London. A great deal of hardship resulted and abhorrence of the British rule became general. Most of the Boers did see the justice of emancipating the slaves, but their income had depended almost entirely on the work of slaves and they had not received adequate compensation.

Excessive lenience by the Colonial Secretary, Lord Glenelg, towards native warrior tribes that constantly plundered frontier farms and murdered settlers finally convinced the Boers that British policy was not to be trusted. The

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Great Trek began in 1835, and the hardships through which these sturdy settlers battled in search of a land they could call their own have made the exodus from the Cape a saga of pioneering endeavour.

Yet the wanderers were never free of British interference for long. Often the British were only carrying out the normal responsibilities of colonial government, but there was again some mismanagement through ignorance of local conditions.

The settlement of Indians in South Africa dates from 1860, when British colonists in Natal started sugar plantations. As the local natives did not make good labourers, coolies were brought from India on seven-year indentures, and their descendants now outnumber the white people in Natal.

The discovery of diamonds at Kimberley in 1867 caused land disputes between the Dutch and British, but more serious trouble was to arise from the gold rush to the Witwatersrand in the Transvaal in 1886. By 1896 the "Uitlander" prospectors, mainly British, outnumbered the Boer inhabitants of the province, who nevertheless allowed the newcomers no political rights, no education for their children and little equality of justice in the courts, while expecting them to pay all the usual taxes as well as special duties in connection with the mines. In 1895 a "Uitlander" attempt to overthrow the Boer Government ended in the fiasco of the Jameson Raid and increased sympathy from European nations for the Boers. Soon after this it became clear that war was inevitable, and a Boer ultimatum over the drafting of British troops to South Africa was merely a foreword to their declaration of war.

Long after the major battles were over, Boer commandos under De Wet, Botha, Smuts and Hertzog continued large-scale guerrilla warfare. The commandos being indistinguishable from any of the Boer civilians. Kitchener found that the only way to reduce the country to order was to confine whole groups of the populace in concentration camps. Some camps were badly managed and scant sanitary and medical provisions were made. Many Boers died in the resulting epidemics, as Dr. Malan and his colleagues well remember.

Reforms followed the war, and in 1909 the Act for the Union of South Africa was passed, a significant feature being the great power given to the Union Parliament and the reduction of provincial governments to the status of county councils. This arrangement differs greatly from the federations of Canada and Australia.

South Africa remained loyal to the Empire through the First World War and again supported the Commonwealth cause from 1939 to 1945, thanks to the timely political victory of Jan Smuts over General Hertzog at the outbreak of hostilities.

Smuts, the Boer General who became "a very great Englishman" in the eyes of some sneering Afrikaaners, scoffed at race. But the age of Smuts is gone. The place of that great philosopher statesman, whose ambition it was to create "a better feeling in the hearts of men," has been filled by politicians who lack Smuts's breadth of vision and are moved by nationalism and a natural fear of the coloured peoples who outnumber them.

The need to tackle economic and political problems arising out of the preponderance of the black population is recognized by the main political parties in South Africa. As native education becomes more effective white workers are being replaced by coloured labour in an ever-widening range of jobs, and as the immigration of white people declines so does the numerical superiority of black over white steadily increase. Education is likewise intensifying the political

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aspect of the colour problem since it increases the number of natives demanding voting rights.

Smuts did not like racial segregation but he accepted some measure of it as a necessary, and perhaps temporary, evil. With the Nationalist Government now in power "apartheid" is being carried to extremes. To them it means not only keeping each race within certain clearly defined geographical areas but complete economic and political cleavage as well. The 8,000,000 Africans, together with the Cape Coloured, are almost unrepresented in the Union Parliament and have therefore little hope of securing justice by constitutional means. It is all the more likely that continued persecution will drive the Africans to violence. Meantime, they are beginning to hear about Communism.

With a situation so dangerous developing, it is difficult to understand the Union Prime Minister's persistence in his attack on the Constitution. The white man's quarrel with the Government is very different from that of the African, but the sweep of events may nevertheless throw them together in revolt against oppression. Nothing could be more disastrous for South Africa.

There is still reason to hope that a solution to these formidable problems will be found. Traditional respect for the Constitution, coupled with South Africa's grave economic plight, may yet prove too much for Nationalist plans. The general election in 1953 will tell, if the situation can be controlled until then. The long-term cure for the Union's ills can come only through leadership of the kind Smuts gave. To Smuts there were no insuperable difficulties. They could all be settled by gathering the disputants round a conference table and washing out racial or political differences with tolerance and good will. Yet South Africa tested even Smuts's inexhaustible patience and courage. "What a nation we might be," he once sighed, "with our qualities and opportunities, what a great and powerful people; if only we could leave off quarrelling, if only we had not so many hates."

The views expressed in this Journal are those of the authors, and are not to be construed as official opinions or policies.—
EDITOR.

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(Photo: Martin-Baker Aircraft Company)

Martin-Baker Mark 1 Ejection Seat with head blind in ***extended position***

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THE DEVELOPMENT OF THE BRITISH EJECTION SEAT

By Squadron Leader P. F. Blackford

A.P.970—General Requirements for R.A.F. Aircraft—specifies that "crews must be given a reasonable chance of being able to abandon the aircraft in emergency." Meeting this innocent-looking requirement has always given designers of new R.A.F. aircraft great difficulty. The requirement as stated is capable of broad interpretation and advantage has sometimes been taken of the absence of a firm definition as to what constituted a "reasonable chance." For example, facilities for abandoning the dual Mosquito depended on so many favourable circumstances that their description as reasonable required a considerable effort of imagination; conversely, the Beaufighter, without performance penalty, had a practicable and practical method of emergency exit in the air.

Before the last war, escapes from aircraft in the air were comparatively rare and it was only when the war gave such frequent opportunities for studying emergency escapes that it became obvious that there was more to the problem than designing suitable emergency exits. It became clear that either a high indicated air speed or a comparatively low rate of positive acceleration normal to the pitching plane would prevent a man from abandoning his aircraft. These limitations were measured in realistic tests by the R.A.E. which proved that in level flight an airstream of more than 175 knots would stop a man climbing upwards out of an escape hatch by holding him firmly against the rear part of the opening, and also that a relative acceleration fluctuating between plus and minus 1 G would usually prevent a man in a big aircraft from reaching a parachute exit. Plainly to continue to give them their "reasonable chance" aircrew would have to have some mechanical assistance to abandon their aircraft in emergency, and so in 1944 research began in England into the development of an aircrew ejection seat.

Some of the most serious difficulties were obvious. To be sure of clearing the aircraft cleanly at all possible air speeds, the seat would have to reach a speed of 60 feet per second relative to the aircraft and to reach this speed in the distance available a very high rate of acceleration was required, but the tolerance of the human body to such acceleration was unknown and could only be proved by tests. The seat also had to function effectively even under a high positive acceleration normal to the pitching plane, and it had to allow for subjects whose weight might be 25 per cent. either side of the average. The propelling charge had to be designed to vary its propelling force as little as possible under temperature conditions between about -60° C. and $+45^\circ$ C. Furthermore, since these seats were planned for multi-seater aircraft, ability of an aircraft to withstand the reaction from the ejection of a seat and man without structural failure had to be proved. Then what would be the physical effect on a man of ejection into a 600-knot airstream? Such an airstream was believed capable of stripping the flesh from a man's skull and dislocating his limbs. How was the seat to be slowed down quickly after ejection so as to avoid delay in the man opening his parachute? The seat would have uncertain ballistic qualities and how was it to be prevented from tumbling or spinning at a rate that would incapacitate the man?. The perfection of an ejection seat involved the solution of these and many similar problems.

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The first prototype of the British ejection seat, which was ready for test in May, 1945, was a strengthened conventional seat which could be propelled up a guide rail parallel to the seat back by a jack energized by a single explosive cartridge. Loaded with a dummy man, this seat was tested in the air by a series of ejections from a Defiant in May, 1945, at various air speeds up to a maximum of 260 knots. These tests were, mechanically, entirely successful, and proved the ability of an aircraft to withstand the reaction of a seat ejection, but they did not prove the ability of the human body to withstand such treatment. Therefore, since live air tests would obviously be premature, a test rig was built consisting of a steeply inclined guide rail, up which the seat could move, with ratchet stops to hold the seat at the highest point of its travel, for preliminary live tests on the ground. The purpose of this series of live tests was to start off by firing a man up the guide rail, in the seat, with a greatly reduced propelling charge and then to increase the charge gradually until either the human limit of tolerance or the charge already proved sufficient in the air was reached. At once the tests proved that, even with a reduced charge, the acceleration was well beyond that which the human body could stand. The acceleration was shown, by assessment of a ciné-camera film, to reach the high rate of 100 G for a few micro-seconds immediately after the cartridge was fired. Failure of the human element was therefore not surprising, but even so two useful lessons were learned from these early tests. The first was that the subject's back should be straight and not bent; at first the subject's back had been deliberately bent by raising his feet to the level of the seat, but after injury to one subject the straight back position was adopted and proved more suitable. The second lesson was that the acceleration must build up as slowly as possible to its maximum.

The seat was therefore completely redesigned and was given many new features to overcome the faults found in the early tests. The subject's back was now kept straight by lowering the foot stirrups to the level of the floor of the cockpit and by introducing the face blind which kept his head firmly against the top of the seat back during ejection. This blind also solved a number of other difficulties. It was housed in a stowage in the top of the seat back, level with the top of the subject's head, and was operated by a large ring which just protruded from the stowage. It was designed to be pulled over the top of the subject's head and then down over his face and, when fully extended, to fire the seat ejection mechanism. It protected the subject's face from slipstream and prevented his head from falling forward or to either side, under the influence of the ejection force. It also located the subject's hands and arms in front of his chest and so reduced the possibility of their being caught either by part of the aircraft structure or by the airstream after ejection. As well as the foot stirrups, which located the feet and prevented their catching on the aircraft structure during ejection, the subject's legs were protected by thigh guards which held his knees together and prevented his legs from being forced apart and injured by the slipstream immediately after ejection. The seat also incorporated a small drogue which was housed at the top of the seat back. This drogue was intended to be spring ejected from its stowage and to open immediately the seat was well clear of the aircraft; then to tilt the seat backwards, so that the bottom of the seat was presented to the airstream and the chance of injury to the subject by slipstream reduced; and finally to slow the seat down quickly and prevent it tumbling or gyrating so as to simplify release from the seat harness and seat. The most important innovation on this new seat was the two-stage cartridge propellent. By this method two cartridges were used; the first, fired by pulling the head blind, started the seat moving smoothly up the guide rail and as the pressure in the jack reached its maximum

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the second was fired. The rate of increase of acceleration was considerably reduced by this method.

The redesigned prototype seat was ready for air tests early in 1946 and a Meteor was chosen because this could achieve the air speeds at which tests were essential if the seat was to be fully proved. A Meteor 3 was adapted and the first test performed with a dummy man in the seat in June, 1946. The ejection was successful, but the test partly failed because the drogue, instead of opening away from the seat, became entangled with it and did not open. The fault was overcome by the use of an ingenious drogue gun, which was fired by static line when the seat was clear of the aircraft and which then projected the drogue well away from the seat. This solution was found to work well but then the drogue itself gave trouble in subsequent tests. The terminal velocity of a man is about 105 knots indicated air speed and he decelerates to this speed from 600 knots within a few seconds. If, however, he is sitting in an ejection seat, his terminal velocity is about doubled and his rate of deceleration in the air is very much reduced. Therefore, to avoid delay in clearing the seat and opening the parachute, the drogue had to slow the seat down quickly; and, therefore, the drogue had to open at very high air speeds indeed, but using a 3-ft. diameter drogue, shroud lines of 60 cwt. cable were repeatedly snapped at an opening speed of only 320 knots. This problem was eventually overcome by using nylon cords for the drogue shroud lines, which although much weaker than the cables, had sufficient elasticity to absorb the opening shock. These lines proved effective at indicated speeds of up to 500 knots, which is the fastest at which they have yet been tested.

Many less important faults were discovered and rectified in this series of trials and the seat was finally judged to be ready for a live air test late in July, 1946. This first live ejection was made on 24th July, 1946, from a Meteor flying at 8,000 feet at 290 knots indicated air speed, and was entirely successful. Then began an exhaustive series of live and dummy tests to prove the seat under many varying conditions. The use of the head blind for firing the propellent had been challenged on the grounds that it could not be reached under conditions of very high positive acceleration, but tests proved that the blind ring could be reached in a steady 5.5 G turn. Then the ability of the subject to reach the blind ring after the hood had been jettisoned and a very high-speed airstream was flowing past the cockpit had to be proved. The seat passed all these tests and satisfied the R.A.F. and R.N. that it was a practical solution to the problems of an emergency escape in the air from modern aircraft flying at high air speeds; and so the Mark 1 Martin-Baker ejection seat was accepted and introduced into the R.A.F. and R.N.

This seat weighed 143 lb. and in ejection imposed a maximum rate of acceleration on the subject of 18.7 G and a maximum rate of increase of acceleration of 220 G/Second. The normal "Q" type harness was fitted. The seat went into production in several versions, which differed only in minor points, for the Meteor 8 and for various Naval aircraft. The different versions were necessary to adapt the seat to different aircraft which had not originally been designed to take ejection seats. However, the intention was to prove the seat in service and then to standardize on a proved design and use this in all future service aircraft.

Unfortunately, early Service experience with these ejection seats was not encouraging. A high proportion of ejections ended fatally with the pilot striking the ground still strapped into the seat. In every one of these cases the seat functioned correctly in throwing the man clear of the aircraft but all too often the human element appeared to be inadequate to cope with the physical and psychological shock of ejection, and the man did not release himself from the seat

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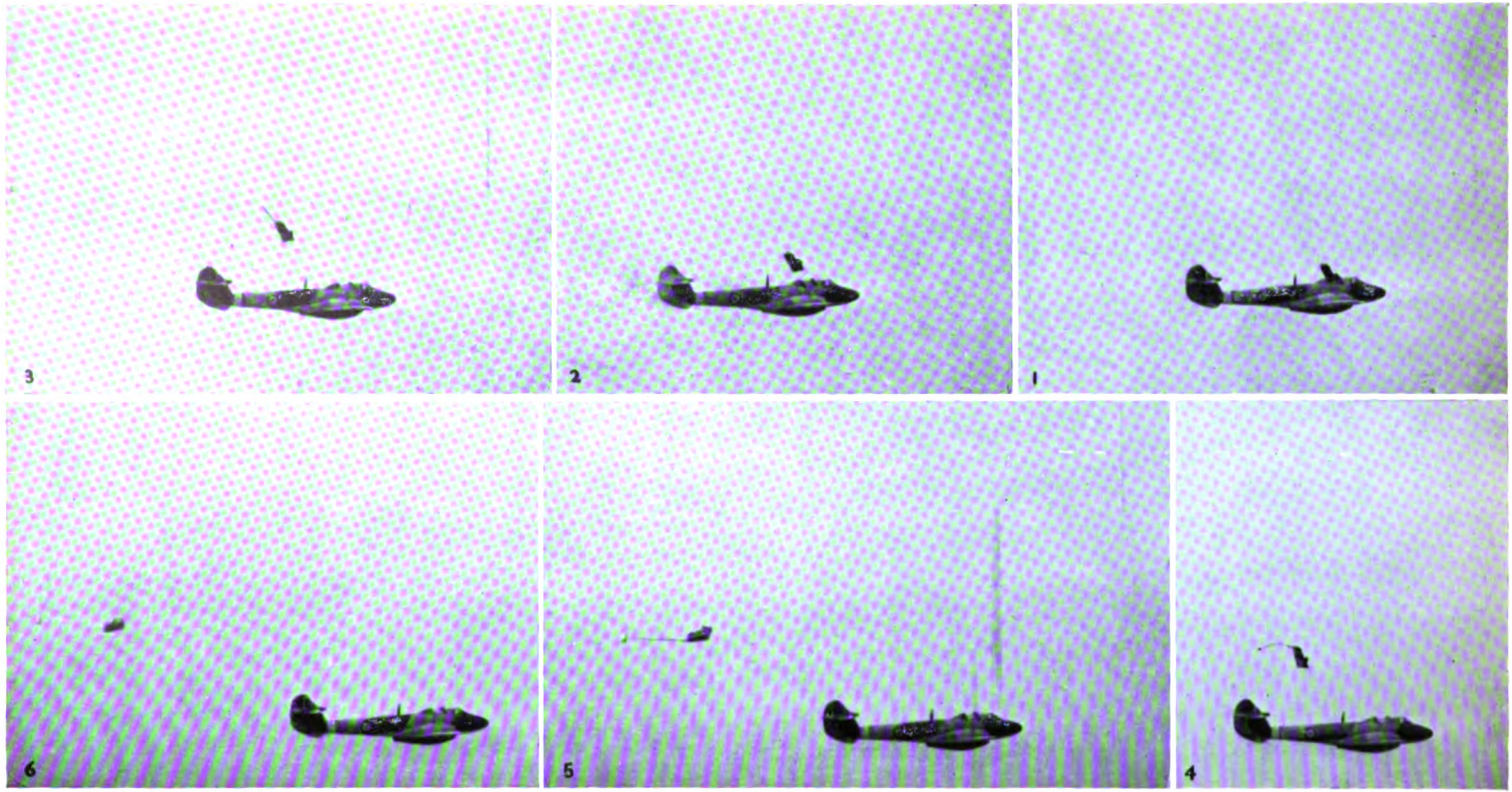

LIVE EJECTION AT 505 MILES PER HOUR

1. Seat just leaving the cockpit. 2. Seat clear of cockpit. 3. Seat higher yet. Ejected shroud lines from the drogue clearly visible above the seat. 4. Drogue just visible and starting to develop. 5. Seat now horizontal and towing the drogue. 6. Seat still towing the drogue

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and open his parachute. Confidence in the ejection seat began to waver at these accidents. The answer to these doubts was a training programme to teach aircrew how to use the seat and a training ejection seat rig was introduced into the R.A.F. consisting of a very similar framework to that used for the early ground tests of the seat. On this rig aircrew could be taught the simple drill involved in ejection and could experience the sensation of ejection from a dummy cockpit. However, training alone was not enough. Experience indicated that, as far as possible, the operation of the seat and parachute should be automatic.

The simplest solution was to fit a time delay device to the seat which would release the man's harness a set time after ejection; since, when falling, the seat was tilted well forward by the drogue the man would then automatically fall out of his seat and a static line from the seat could be used to open his parachute. Unfortunately, tests showed that the seat would almost always fall into the developing canopy with disastrous results, and a more complicated solution had to be devised. This was to fit a delay switch to the seat to release the man's harness after ejection, and to open his parachute at a pre-set height, or if already below that height, after a further short delay. This idea was tested and proved satisfactory, and as a result a conversion set has now been designed which can be fitted to all existing ejector seats.

This conversion set, which is shortly to be introduced into service, releases the man's harness and frees the drogue from the seat at pre-set height by a barometric release. The drogue remains attached to a canvas panel behind the man which then is rapidly tensioned, helping to throw him out of the seat. The head blind is released at the same time to prevent the man holding himself in the seat with it. The drogue then acts as a pilot parachute, releasing the rip pins and deploying the canopy in the normal way. This device will normally be pre-set to operate at 15,000 feet but if the man ejects below this height it will operate five seconds after ejection. To guard against the possibility of failure of the device or of the seat ejection mechanism itself through battle damage, the man can release himself from the seat at any time and open his parachute by a conventional D-ring; he can also bale out normally without ejecting. However, there are two important reasons why a man falling free in the seat should resist the temptation to anticipate the automatic device. The first is that the seat will help to protect him from extremes of cold at high altitudes and the second is that the severe opening shock above about 30,000 feet might burst his parachute. The temptation may be hard to resist because trials have shown that when falling from high altitudes the seat will sometimes spin about the vertical axis at a rate which might induce sickness. However, crews can be confident that the automatic device has proved efficient in the most exhaustive tests that can be devised.

Only Service use can ultimately prove this new ejection device, but trials encourage the opinion that we now have an escape system which, without imposing a significant performance penalty on the aircraft, will give aircrew a more than "reasonable chance" of escape under all foreseeable circumstances. For this device we are indebted to the perseverance and skill of James Martin, of the Martin-Baker Aircraft Company, who conceived the idea and has personally designed every detail, and to his shop foreman, Bernard Lynch, who was the subject for nearly all the live tests, both on the ground test rig and in the air. We have these men to thank for the most important contribution to aircrew life-saving since the parachute.

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[Air Ministry Photo

Cecil Rhodes's grave on a kopje in the Matopos Hills. A Zulu guard points out something of interest to two airmen

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IN THE RHODES TRADITION

By Thomas Cochrane

A SHORT drive from the Headquarters of the Rhodesian Air Training Group of the Royal Air Force at Kumalo, outside Bulawayo, takes officers and airmen to the austerely simple grave of Cecil Rhodes. As the visitors stand by the granite vault of the pioneer and imperial visionary on this whaleback kopje in the Matopos Hills one understands how great an attraction such a spot must have had for Rhodes when he sought a place for contemplation. The breadth of outlook from the smooth dome of rock through the clear air is expressive of Rhodes's comprehending vision of the great sweep of possibilities that Central Africa offered, and still offers, to the white man.

Although a possibility which Rhodes could not have foreseen, the vigorous war-time and post-war training schemes for the Royal Air Force in Southern Rhodesia are projects which the founder of the Colony could only have wholeheartedly welcomed and fostered. The successful carrying through of Southern Rhodesia's contribution to the Empire Air Training Scheme during the war gave the Colony's administrators a new assurance and self-confidence. In a short space of time a training organization was built up comprising eleven stations. One station in the central area of the Colony was made ready from the bare veld in eleven weeks, while at stations near Salisbury, Bulawayo and Gwelo extensive housing projects for married quarters were hurried through. Most of this war-time building has reverted, or been converted, to civilian use since 1946. Station buildings became schools, civil airports lost the R.A.F. roundels from the tarmac, and the married quarters were made available to settlers and their families.

It is to the lasting credit of the Southern Rhodesian Government that this youngest of the Commonwealth partners should have such a confirmed reputation for doing first things first, in association with the youngest of the Services. Southern Rhodesia put the first Commonwealth squadron in the field during the last war when No. 1 Rhodesian Squadron (later No. 237 Squadron) took up its station at Nairobi two days before war broke out. It was also in Rhodesia that the first flying school of the Empire Air Training Scheme was opened, in May, 1940, a week before the great contribution to be made by Canada began. Eight thousand five hundred British aircrew pupils were trained in Southern Rhodesia before the end of the war. Such pioneering work and accomplishment were in the best Rhodes tradition.

When peace was transmuted to the "cold war" it was in Southern Rhodesia that the post-war revival of overseas flying training for the Royal Air Force was initiated. Six years ago (May, 1946) an Air Ministry mission visited Southern Rhodesia to discuss a new post-war scheme for the training of R.A.F. pilots and navigators there and later in the year the two Governments signed a formal agreement in London. Under this agreement the Southern Rhodesian Government provides accommodation, aerodromes, certain services and domestic help while the R.A.F. controls policy and brings in personnel, aircraft and equipment.

Although the training scheme today is on a smaller scale than during the war, its efficiency as a training machine for pilots in the untroubled skies of Rhodesia remains an undisputed asset. Air Vice-Marshal T. N. McEvoy, C.B., C.B.E., Assistant Chief of Air Staff (Training) in the Air Ministry, has recently returned from a flying visit of inspection to the Group well satisfied with the tempo and output of its flying schools.

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[Air Ministry Photo

Staff, instructors and airmen in Rhodesia are fortunate in the liberal scale of married quarters available. A warrant officer's bungalow at Thornhill

[Air Ministry Photo

As a familiarization test, aircrew trainees are taken by a leader about 15 miles into the "bundu," or bush country, and make their own way back

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The Group is controlled from Kumalo, on the outskirts of Bulawayo, where the Air Officer Commanding, Air Commodore H. H. Brookes, C.B.E., D.F.C., has his headquarters. The two stations carrying out the basic and applied training of pilots are at Heany, fifteen miles north-east of Bulawayo, commanded by Group Captain J. Constable-Roberts, C.B.E., and at Thornhill, just outside the township of Gwelo, commanded by Group Captain H. Waring. Reserve landing grounds are maintained at Whites Run, for Heany, and at Moffatt, for Thornhill. Two maintenance units, one in Bulawayo, the other at Heany, provide first-line servicing for the Group, and make it highly self-reliant. The Group is able to look after itself so well that it has no regular contact with the extensive Middle East Command which comes down as far south as Eastleigh, Nairobi: equipment and stores come up from Durban, and fuel through Beira, on the coast of Portuguese East Africa.

To the young man coming out to Southern Rhodesia to begin his flying training the journey out from England and the opening up of the vast vistas of the Central African "bundu," as the undeveloped terrain of the Colony is called, provide a short and instructive lesson in climatology and geography. From his initial training school at Jurby, in the Isle of Man, or Cranwell, he flies east and south through Malta, across the Libyan deserts to Khartoum, then along the upper reaches of the Nile to Entebbe, on the northern shores of Lake Victoria. The last stage of his journey in a chartered aircraft brings him in sight of the spouting spray of the Victoria Falls before his York aircraft lands on the wide, trim runway of near-by Livingstone Airport. From there he goes by Central African Airways Viking either to No. 4 Flying Training School, Heany, or No. 5 Flying Training School, Thornhill. Every six weeks a course comes in over this route from the temperate airs of England through the burning heat of the North African desert to the high plateau and more amenable climate of Rhodesia.

Whatever preconceived notions the newly arrived acting pilot officer may have of what Southern Rhodesia has in store for him members of the senior course at his flying training school will probably instil into his receptive mind some quite surprising facts about local fauna and topography. As he has to fly over sparsely inhabited stretches of country which he might have to trek through if he force-landed, it is part of the official curriculum to introduce the new arrival to the "bundu" during his first week. In parties of three they are dropped off in the bush fifteen miles away from their station and are left to make their way back. They have been briefed on the varieties of wild life that can be encountered—leopard, rhinoceros, elephant and, of course, snakes—and set off with water-bottle and marching compass for their station, which is soon picked up from any vantage point by the continual stream of aircraft in circuit over the airfield. The assurance given that wild animals are almost invariably anxious to avoid humans is borne out by the complete lack of interceptions during these return journeys. The only claims have been the sighting of snakes.

In country which gave Baden-Powell much of his inspiration for the spirit of scouting the training in leadership and initiative so indispensable among "officer qualities" has been strongly developed at these two stations, phased in with the flying and other ground training. The most comprehensive of these tests comes when the course is given the task of setting up a complete advanced fighter airfield. Arrived at the site of a disused airstrip, the young officers have to plan and lay out the station, adapting its administration and functioning to the amenities and facilities available in the area. The whole team provides for itself for forty-eight hours, and much initiative is shown in improvising the short-lived station life, even down to a rough-and-ready ante-room for the mess.

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Most enjoyment is got when there are two sides to one of these initiative exercises. At Thornhill some of the devices adopted by the infiltrators and saboteurs set the task of destroying key points in the station have been in the best "B-P" tradition. One pilot officer, given the task of blowing up the armoury, had himself made up in Gwelo by a hairdresser, skilful in amateur theatricals, to look of an age more appropriate to a squadron leader. He then rang up the motor transport section at Thornhill and, introducing himself as Squadron Leader ——— from the Air Ministry Works Department, ordered a staff car to come and fetch him from the town. At the guardroom he criticized the turn-out of one of the sentries and went off in a clearly critical mood to inspect the rest of the station. At the armoury he queried irrascibly why two pilot officers should be mounting guard and dismissed their explanation of "But there's an exercise on, sir," with a gruff "Tomfoolery!" Shortly afterwards the armoury was technically obliterated. In another of these exercises an innocent-looking parcel wrapped up in the paper and ribbon of the main Gwelo stores was left in the adjutant's office addressed to an officer on leave. Ten minutes later the "time bomb" it contained "blew up" the station commander.

But the defenders sometimes get the better of the exchanges. One defender, recognizing that almost all entry to the station came through a bottle-neck over a narrow bridge a mile from the camp, set up a road-block there. By searching all vehicles that passed, he collected almost all the twenty-odd infiltrators, but his usurpation of police powers required a rapid clearance with the Police Commissioner in Gwelo when the course commander heard what was afoot.

Most of the course is spent, of course, in flying, and the recently arrived Chipmunks provide much more suitable basic trainers than the Tiger Moth in preparation for graduation on Harvards. Eleven weeks are spent in Chipmunks and twenty-two weeks in Harvards before the acting pilot officer qualifies for his "wings." Soon after his first Harvard solo during his applied training he is given two weeks' leave and, fortified by the initiative instilled in him, he often makes off for the sea at Durban, some thousand miles away, or even farther afield to Cape Town. If he wishes for a less arduous break he can go up to Livingstone and spend his leave within the ambit of the dull roar of the stupendous falls.

Leisure moments at other times are lavishly catered for. The weather presents no problem for the sportsman and every form of organized games is enjoyed and competition is strong within the stations and in the inter-station contests.

The young commissioned officer who goes to the Rhodesian Air Training Group can count himself indeed fortunate. As well as being introduced to flying in ideal conditions his mental horizon is swiftly widened by an early insight of the problems and privileges of Commonwealth relations and development possibilities. The climate, food and sports opportunities all help his physical well-being.

To the Air Ministry and the Royal Air Force the scheme provides a regular and inevitable turn-over of pilots with clockwork precision, with a war-time potential behind it, untouched by the threat of actual conflict.

For the Southern Rhodesian Government this contribution to the present aircrew needs of the Royal Air Force is a statesmanlike contribution to the unity of Commonwealth air defence, and participation in the training is available to its own Air Force as and when the need dictates. The war-time scheme brought thousands of aircrew of the Royal Air Force into close contact with the life and possibilities of the Colony and in its strong upsurge of population since the war the number of former R.A.F. officers and men to settle in Rhodesia has been large. From all points of view this well-tried scheme stands high in the accomplishments of the Commonwealth.

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THE AIR FORCES IN PARLIAMENT

REARMAMENT AND THE EXPORT DRIVE

NATIONS, like individuals, must pay their way. And, again like individuals, their productive capacity is limited.

At the present time, this nation has two pressing needs that must be satisfied: the need for imports of food and raw materials and the need for re-armament. Our imports have to be bought with exports of manufactured goods we produce, and rearmament absorbs a substantial part of our productive capacity. Hence Her Majesty's Government have to strike a delicate balance between production for export and production for rearmament, while bearing in mind also the requirements of home consumption.

If production for export falls below a certain level, not only will our imports of food be reduced but our imports of raw materials for industry will also be reduced and these are necessary both for rearmament and for manufacture and re-export. In other words, if we devote too much of our productive capacity to the manufacture of armaments and not enough to the export drive, we shall have insufficient credit overseas; and that will result in (*a*) smaller rations, (*b*) less clothing and housing, (*c*) less raw material for armament manufacture, (*d*) less raw material for the export industries, and (*e*) still fewer exports and imports. This further reduction of exports and imports would start the whole cycle of reduction over again and that cycle would evolve with ever-increasing velocity; so that we should soon be seriously short of food and of other domestic necessities and unable to proceed with rearmament altogether, thus laying ourselves open to attack.

If, on the other hand, we devote too much of our productive capacity to manufacture for export, we may obtain enough imports for home consumption and for re-export as manufactured goods, but our re-armament programme will again be hindered and we shall thus also lay ourselves open to attack.

As our present productive capacity is apparently insufficient to satisfy fully both our rearmament and our export needs as well as our domestic requirements, all these must be adjusted with the minimum overall disadvantage. That was the problem which faced Her Majesty's Government just before Parliament adjourned for the summer recess. It was solved by a judicious compromise: by modifying somewhat the rearmament programme in its less essential details and by temporarily accepting a lower standard of living than had been planned and hoped for.

The Prime Minister announced that Her Majesty's Government were resolved to "do their utmost in the defence of the free democracies and to stand fast with the Commonwealth, the United States and our other Allies in resisting the encroachments of Communism."

There can be no assurance of lasting military strength without a firm economic foundation and no defence programme can stand without the economic resources to carry it through. The defence programme must, therefore, be kept within the limits of our economic strength.

In consideration of the immense new burden of the rearmament programme, we are receiving this year about £175,000,000 from the United States.

In the two years that have passed since the original programme was launched,

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some weapons on which immense sums were to be spent have become obsolescent and new types and devices have come into view, causing changes in military tactics. For instance, immense strides have been made in the power of atomic weapons and in the range and accuracy of their delivery upon their targets. New and vastly improved aircraft have profoundly affected the tactics of air warfare and air defence. Remarkable progress has also been made in the development of guided missiles and rockets. These improvements have enabled many practical economies and reductions to be made in the original programme with a positive increase in war potential.

In budgeting for a rearmament programme one is, of necessity, compelled to divide one's resources proportionately between the maintenance of existing forces and the production of new and improved equipment. In our air forces the pressure of new types and of superior inventions is enormous, but the earliest possible production of the newest and finest types of aircraft is being assured by what the Prime Minister calls "super-priority."

While we are fully engaged in rearming we still have to maintain our front in the Cold War for which, as the Prime Minister said, the more conventional armaments are necessary. Hence our need to maintain large bodies of infantry and ancillary arms and numerous squadrons of aircraft in various parts of the world to show a potential enemy that we are prepared to resist aggression and to defend our rights.

The Prime Minister also said that we should not fail to play our part in supplying our Allies with the weapons and equipment they need. It may seem odd, while we are straining to rearm, that we should still be selling arms to others. But the fact is that armaments are best-sellers today. They find ready and profitable markets. So that there are considerable advantages in selling arms to our Allies. In the first place they constitute a valuable part of our total exports and help to pay for imports; in the second place, we benefit by the savings and efficiency which come from mass production and by having our production plants working at full power, with all that this means if war should come; and in the third place they strengthen our friends and allies in the Commonwealth and among the members of the North Atlantic Treaty Organization.

AIR ACTION IN KOREA

Air action in Korea by the United Nations air forces, including units of the R.A.F., the R.A.A.F. and the S.A.A.F., as reported by the Minister of Defence (Earl Alexander of Tunis) in the House of Lords, consists largely of regular heavy attacks against enemy positions with the special object of limiting the enemy's chances of launching a successful offensive by putting out of action and keeping unserviceable the major airfields in North Korea that are capable of being used for jet fighter operations.

Accurate night bombing has caused the Communists to abandon their efforts to base jet fighters on three new airfields which they had constructed near Sinanju last autumn, and on two other airfields which they had enlarged to accommodate jet aircraft. Sinanju is half-way between the Chinese border and Seoul. The United Nations forces enjoy air superiority over the immediate battle area. A large proportion of the Chinese aircraft are still stationed in Manchuria and the lack of forward airfields would seriously handicap them if they attempted to stage a sustained offensive.

The other main objective of the United Nations air forces is to disrupt the flow of supplies to the enemy ground forces, to limit their troop movements and

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to destroy their supply areas. The success of these attacks has severely restricted rail traffic in North Korea and forced the enemy to limit the movement of road vehicles to the hours of darkness.

Day-time air activity in Korea is mainly confined to air reconnaissance, photographic work and air strikes against known targets. Up to the time of writing, our air interdiction programme has kept out of action all enemy airfields south of the Yalu river. R.A.F. Sunderlands are taking an active part in the anti-submarine and shipping patrols, thus helping to ensure the security of our sea lines of supply between Japan and Korea. A number of R.A.F. fighter pilots have been serving with American squadrons and have acquitted themselves with distinction. Australian and South African squadrons have also taken part in the United Nations air operations. (An excellent account of the part played by the Royal Australian Air Force is on pp. 267-272 of the July Number of THE ROYAL AIR FORCE QUARTERLY.)

THE YALU RIVER POWER PLANTS

Participation by the R.A.F. and Commonwealth air forces in the war in Korea renders the bombing of the power stations in North Korea pertinent. It appears that, owing to an oversight, neither Her Majesty's Government in the United Kingdom nor those in the other countries of the Commonwealth were consulted or informed before this action was taken. This has been the subject of lengthy debates in both Houses of Parliament. No doubt care will be taken in future to ensure adequate discussion and information of plans, the carrying out of which may have far-reaching strategic effects. The war in Korea is being waged under an American Supreme Commander with the authority and on behalf of the United Nations; but the nations of the British Commonwealth, in common with other nations, are vitally interested, not only as members of the United Nations but also as active participants in the war.

Both as members of the United Nations and as participants in the war, the nations of the British Commonwealth may at any time find themselves involved in operations in a wider sphere if the war in Korea does not remain limited and localized; though it is clearly the intention and desire of Her Majesty's Government to prevent the war spreading, if that can be done without loss of prestige and sacrifice of principle.

Still, the United Nations forces must have the right to bomb any target within the prescribed field of their operations, except of course those which are protected by the Geneva Convention. We are not among those who advocate modifying hostilities "for fear of annoying the enemy." We were, in fact, brought up to believe that one of the objects of war was to annoy the enemy and, in particular, to reduce his war potential and productive capacity by any means that could be justified by the Laws and Usages of War. But we recognize that no bombs may be dropped by United Nations aircraft beyond the Yalu river, and that the enemy enjoys a considerable advantage from this restriction because his main bases are inviolate.

Attacks such as those on the power stations, while materially decreasing the enemy's war potential in Korea, do not involve any extension of the operations so far pursued, nor do they go beyond the authority vested in the United Nations Supreme Commander. Apart from the fact that Her Majesty's Government were neither consulted nor informed beforehand, criticism of the bombing of the hydro-electric installations in North Korea was based mainly on the following considerations: (*a*) they supply power to the civilian populations in Korea,

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Manchuria and Siberia, (*b*) bombing them might so provoke the enemy as to cause an extension of the war, and (*c*) this was an inopportune time for such action as it might prejudice the chances of a satisfactory conclusion of the armistice negotiations.

With regard to the first objection, the destruction of any source of power will almost always affect civilian populations and the fact that the loss to civilians may be greater than the loss to the military need not affect the issue. (In this case, we understand that the civilian population was warned to keep out of the way.) During the last war, our air activity over France (an unfortunate necessity) while reducing the enemy's war potential and restricting the movements of his troops also deprived the French civilian population of industrial resources and transport facilities; and one of the objects of the war was to liberate France, a friendly nation and a potential ally. If therefore we could not then spare French industrial plant and communications, why should we now hesitate to deprive some civilians of electric power?

With regard to the second objection, it is true that our policy is to avoid, if possible, any extension of the war, and the Prime Minister has recently stated that this policy is unchanged. Nevertheless we must not allow that consideration to be paramount and to over-ride all other considerations, tactical and strategical; for if we do so, we put ourselves at a hopeless disadvantage.

With regard to the third objection, there may be some justification for saying that bombing the power plants may stultify the efforts of the armistice negotiators; but it may also be said, with no less justification, that a show of force may strengthen the hands of the United Nations delegates and not only improve the prospects of an armistice but also enable our side to obtain better terms. The Chinese Communists are not going to agree to a cease-fire when they think they will gain more by prolonging the war; but if they are manifestly going to lose by prolonging hostilities then they may well be persuaded to agree to their cessation.

R.A.F.V.R. TRAINING

The Under-Secretary of State (Mr. Ward), in reply to a question in the House of Commons on 2nd July, said that the most effective training for ground members of the R.A.F. Volunteer Reserve was given during their annual fifteen days' attachment to R.A.F. Stations and that part-time, or non-continuous, training at Reserve Centres was difficult to organize efficiently and economically. It had therefore been decided to concentrate the training of the majority of the ground reservists into their annual camps, where they have the benefit of serving and training alongside R.A.F. regular personnel. Special R.A.F.V.R. units would, however, continue to receive part-time training in their units, and ground training for aircrew reservists would continue at Reserve Flying Schools. The number of Reserve Centres could thus be reduced without detriment to the standard of training.

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MOUNTAINEERING IN THE R.A.F.

By Michael Holton

COMMENTING in a letter to the *Times* last July on the increasing bias towards technology seen in the Fighting Services, the Commandant of the Military College of Science said that the need to keep a broad outlook was becoming increasingly felt. However, he added that this need was reflected widely in the Services in the fields of sport and cultural activities.

Certainly many branches of sport are now well established in the R.A.F., but perhaps one of the youngest is mountaineering. Because of the absence, fortunately, of any competitive element, mountaineering does not lend itself to the organization of regional and national contests. Nor do most stations have within easy access a suitable ground for the mountaineer to play at his sport. Nevertheless, there has always been in the R.A.F. a good sprinkling of those who will take the slightest opportunity to go off to the mountains—on their leave, at weekends and even for an odd evening. Some widely known mountaineers have been amongst these: Frank Smythe and Wing Commander Bentley Beauman, to name only two. Many more climbers and mountaineers served in the R.A.F. during the last war; their activities did occasionally come to the surface officially through the medium of mountain-rescue teams or such enterprises as the Aircrew Mountain Centre in Kashmir.

Many of the mountaineers in the R.A.F. already belonged to a climbing club and were often able to find companions for their expeditions. Before the war, climbing was a "contagious" sport, and those who wished to learn to climb had to be fortunate enough to meet an enthusiast who could literally show them the ropes. This personal link was often easy to make at a university or if one were lucky enough to live near the mountains. After the war, however, climbing became "infectious" and it seemed that people could catch the disease merely by reading books. At the same time there was a great increase in the number of climbing clubs and interest in the sport steadily grew. Many of these clubs were small and purely local; a few were wider in their membership. As is the case with the old-established clubs, some of the new organizations required some standard of the individual before he could be fully admitted to their membership.

On 10th January, 1948, a meeting of representatives at the Air Ministry decided to form a mountaineering organization for the R.A.F. At this gathering, the R.A.F. Mountaineering Association was born; its aims were to be the encouragement of the sport within the R.A.F., and to train members from the earliest stages to the highest level. It was to be open to all past and present members of the R.A.F. The R.A.F. Sports Board were particularly helpful in the forming of the Association and have since continued to give every assistance. A committee which represented all ranks was formed under the chairmanship of Wing Commander A. J. M. Smyth, and the Association was honoured by Air Chief Marshal The Hon. Sir Ralph A. Cochrane, who agreed to become the first President. Air Vice-Marshal Ledger, Group Captain Lord Malcolm Douglas-Hamilton, Mr. Frank Smythe and Mr. H. W. Tilman became Vice-Presidents; Professor T. Graham Brown and Wing Commander Beauman also were later elected Vice-Presidents in recognition of their services to the Association.

The news spread around and membership grew. At first a number of more

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A R.A.F. Instructor negotiating a difficult crack on the face of Kern Notts, Great Gable, Lake District

experienced mountaineers, many of them members of the senior clubs, formed a nucleus, but slowly complete novices and others who had not yet had the opportunity to do much serious climbing began to realize that this was their chance. From the beginning the Association's plan to teach climbing has been closely followed; by the payment of a nominal subscription and arranging leave for the period of one of the Association's meets, any past or present member of the R.A.F. could make use of the valuable opportunity at no great financial cost to himself. The minimum amount of equipment was necessary, for ropes, tents, ice-axes and other equipment—often expensive items—were supplied by the Association. In the four and a half years since the Association was formed, over forty meets have been arranged in all the mountain areas of Great Britain, and in the Alps and Pyrenees. Also there have been countless week-end and day meetings at the various rock outcrops throughout the country.

Although an important function has been the training of newcomers to climbing and the teaching of mountain craft, many experienced mountaineers have spent very enjoyable leaves with other Association members, and at times a very high standard has been reached. Several first ascents have been made during meets, and last February the second winter ascent was made of a Scottish ice gully previously led by a member of the 1951 Mount Everest Reconnaissance.

An analysis of the present large membership shows that there is a good cross section. One interesting point to note is that about 50 per cent. are from the ranks, while officer membership represents another 25 per cent. The remaining quarter consists of ex-Service members, some of whom had left the R.A.F. before the Association was formed. These members have thus maintained a link with the R.A.F. and quite often participate in the meets.

The log-book which records the meets makes interesting reading and might provide some with the answer why anyone should want to go and climb a mountain in the first place. The Association has, as yet, no climbing hut of its own, but is often able to use huts belonging to one of the old-established clubs. These are situated in such places as the Llanberis Pass in North Wales, Wasdale Head in the Lake District, and at the foot of the Ben Nevis crags. Sometimes youth hostels are used or barns and bothies, and at other times the party camps in the mountains. In each case, members pool and cook their own food. The leader of the meet is an experienced mountaineer who arranges the climbing parties and is able to help any novices. For winter mountaineering, some knowledge of rock climbing and rope technique is necessary, and for the annual Alpine meet experience of snow and ice work is required as well. Beginners may, however, join any other meet.

One development in the organization of the sport in the R.A.F. is the formation of climbing clubs on individual stations. This is being encouraged and

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several clubs are now running successfully. However, there will always be a large number of isolated members on individual stations, and for these the main programme of meets is largely designed. An example of the opportunities available is afforded by a recent meet in the Lake District. As it happened, only one other member was able to join the meet leader. This member was a novice; the leader taught him to climb, and by the end of the meet they were tackling "severes." Needless to say, both members enjoyed their climbing week. The average attendance at meets is about six. The most popular occasion —other than the annual dinner—is usually the winter meet at Laggangarbh, in Glencoe. The base is the Scottish Mountaineering Club's hut there, a lonely old croft at the head of the Pass of Glencoe, near Buachaille Etive Mor, a mountain which towers up beside the wastes of Moor of Rannoch. It has a superb variety of climbs which give good practice for the novice on the one hand, and supreme tests of experience and endurance on the other. As well as the Buachaille there is much more to climb on from Laggangarbh. One of the classic routes is the traverse of the Aonach Eagach Ridge which is a rocky arête at 3,000 feet extending for some miles requiring much care in winter time. On one occasion two experienced members decided to do it by moonlight—a memorable experience in snow and ice conditions. Along the ridge they were amazed to come across another party who greeted them with, "Oh, are you benighted too?"

It is not really surprising that winter mountaineering in Scotland is so attractive. One reason is that the colours of the scenery are often very wonderful, and visibility can be perfect. On an expedition during one of last winter's meets one party were reluctant to leave the white sunlit tops from which they could see for many miles. Below was a layer of mist covering the valleys and plains where less fortunate people had been walking about during the day.

Mountaineers are not always so lucky with the weather. One Alpine entry in the log reads: "Climb was abandoned thirty minutes from the summit owing to complete weather clamp and impending thunderstorm. A disappointing day, with only the satisfaction that the R.A.F. were the only party who made any attempt at all."

Many mountaineers sooner or later find themselves helping in the rescue of someone who has had an accident in the hills. Throughout the mountain areas there is quite an effective civilian mountain rescue organization. It is based on first-aid posts which are supplied with standard rescue and medical equipment. The supervisors of these posts are usually able to raise a rescue team of local people or mountaineers. A number of R.A.F.M.A. members have had considerable experience of this work and for some months now the Association has been assisting Air Ministry in the training of the R.A.F. mountain rescue teams and to advise on their mountaineering and rescue equipment. The R.A.F. teams are, of course, intended for the search and rescue of crews of aircraft which crash in the mountainous parts of the British Isles. They have on many occasions also given valuable assistance to civilian mountain rescue teams who, in turn, have been co-operative in the search for missing aircraft and, where required, have lent the R.A.F. teams their specially designed mountain rescue stretchers.

The origin and nature of the R.A.F. Mountain Rescue Service are becoming more widely known. It originated at R.A.F., Llandwrog, in 1943. Flight Lieutenant Graham, who was station medical officer at the time, decided that a properly equipped and trained team was essential if search and rescue were to be effective in his area. The idea grew, and in time a number of similar teams were set up.

The success of a search and rescue operation depends largely on having a

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number of trained parties in each team who are able to find their way about a mountain-side in almost any conditions, and also on having radio contact between these parties and the officer or N.C.O. directing the search from a forward base, often several miles away, at the nearest road point. Thus as fresh information is received or as conditions change, the parties are instructed accordingly; when the crash is located the position is radioed back and all the parties are ordered to concentrate on that point. The business of searching can be quite a wearying job requiring a high degree of stamina as well as mountain craft, but the work of carrying a loaded stretcher is usually far more arduous and exhausting. This is so even when there are many helpers; weather conditions are very often of the worst kind at such times and the ground is always rough. Despite all this, the men in the teams are volunteers and train largely in their own time.

To reach and maintain the required standards of mountain craft and stamina, the right, careful and very regular training is essential. In addition to week-end and evening exercises there have been a number of fortnightly courses organized by Air Ministry and for which the R.A.F.M.A. have supplied instructors. The purpose of these courses is to train one or two representatives from each team in rock climbing during the summer course and to train the same group in snow and ice technique at another course under winter conditions. The representatives then return to their teams to pass on what they have learned. Two summer courses have been held in North Wales; the first created quite a lot of interest and the B.B.C. made a film for television of several climbing sequences.

A winter course was held at a remote hut on the edge of the Cairngorms last February. Unfortunately, conditions were not so bad as the instructors had hoped! The snow was thawing much of the time and not a great deal of actual snow and ice climbing was possible. The pupils were taken on long expeditions over snow-covered mountains and plateaux—often in cloud. This type of navigation is good experience because at such times there are very few, if any, features to navigate by and movement must depend on highly accurate compass work coupled with experience of winter mountain conditions. One expedition took a party through the Lairg Ghru—a long lonely mountain pass—and up on to the top of Ben Macdhui, the highest mountain in the Cairngorm group. Much of the return journey was made in darkness through wind-blown snow with visibility about ten yards. For the last few miles the way had to be found by map and compass, and even a pocket altimeter was used; bumps of direction are little use in mountain craft.

Mountaineering in the R.A.F. is now well established. This is of some benefit to the R.A.F. as well as to the individual who takes part in the sport for its value as training in leadership has been recognized. It is of particular benefit to the individual who may like to try this game which is a great adventure.

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AB INITIO

By Wing Commander E. J. Tippett, B.Sc., Ph.D.

MANY advances in science and engineering owe their origin to fundamental research, that is to research which was conducted with the primary aim of gaining basic knowledge, rather than of improving some existing device or machine, or even of inventing a new one. The practical improvement or technical advance came later, when the engineers applied the fruits of basic research to practical problems. The atom bomb is a classic example of a practical result of major import emerging eventually from research which was conducted initially in the quest for pure knowledge. The final result is a far cry from the original laboratory work, but the absolute dependence of the former on the latter is indisputable.

MUDDLING THROUGH

The advances in science and engineering which have emerged from absolute research have posed many problems of training and organization which have had to be solved in order that society might enjoy the fruits of the scientific discoveries. But the solution to these problems has almost always been found by improvisation and adaptation of methods and processes which were originally evolved to fit very different conditions. From time to time ways of living and fighting have been revolutionized by science, and yet in the field of training and organization, where ways of exploiting science have had to be found, the final result has too often been reached by trial and error; by muddling through. Would not better results be achieved if the same *ab initio* principles were adopted in taking over from the scientists as are employed by the scientists themselves? Do not revolutionary advances in science demand revolutionary methods in application?

ALONG THE RUT

It will probably be argued that both these questions deserve an affirmative answer, but it is exceedingly difficult to make a really basic approach to a problem of training or organization, as the experience of previous investigations inevitably obtrudes itself on the mind and influences the solution adopted. Men of experience, by virtue of their very experience, cannot make a true *ab initio* approach to such problems. They know too much of what has gone before and approach the new problems inevitably along familiar paths. The richer their experience, the deeper is the rut likely to be along which they will move. But what about men without experience? What about young men, the only ones without experience; young men of intelligence, with minds trained to think and work systematically, but ignorant of anything that can cast them into the rut worn by their elders? Are not they possessors of the two qualities essential to real *ab initio* thinking—intelligence and ignorance; and cannot this happy combination be exploited?

BULLS IN THE CHINA SHOP

Most men in high authority would admit that the vigour and freshness of youth are priceless qualities which must be allowed rein and not be repressed. They would argue that capable young men should be given authority and opportunities for leadership. The initiative, fervour, impetuosity, idealism, originality,

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resilience, even the frolicsomeness, of youth are ingredients which are essential to a vigorous society, they would affirm, and they would observe "promising" young men benignly and nostalgically in the hope that they would show themselves worthy of carrying responsibility. But when would the young men be deemed fit to enter into their high calling? Not until they had gained experience and shown a sense of judgment; that is, not until their very youthfulness had become dulled and they had started to fit into the same mould which produced their elders.

Youth, which possesses unique powers of benefit to society, may not bestow these benefits until the powers have lost much of their potency and uniqueness; until experience, a common quality, has diluted the rarer qualities which it was hoped to exploit. Those in authority are generally unwilling to risk the delegation of their authority to the youthful, until the latter have learned enough of the accepted ways of things to ensure that youthful exuberance shall not lead to awkward predicaments. And who would blame the elders for their caution? Modern society is a complicated structure and to let loose a lot of youthful "bulls in the china shop" might mean the breakage of some valuable "pieces"; but might not a lot of useless bric-a-brac be disposed of at the same time? There is just a chance that the china shop might be improved by the attention of some rampaging bulls, but few would be disposed to take the risk.

THE FOG OF EXPERIENCE

This is unfortunate, as it means that all originality is tempered by experience; that there can be no really new approach to any problem; that even unique problems are likely to be tackled by tried methods which, although apparently successful in the past, may not be best suited to the new conditions. What chance is there that the emanations of a brilliant but inexperienced youthful brain shall receive objective examination? For an original idea to achieve practical result it must be sponsored by someone of influence, especially if financial expenditure is involved; and before the influential senior will lend his weight to any project he will seek advice from his experts. These latter will examine the project in the light of their experience, and an unusual original idea is scarcely likely to emerge unscathed from such examination. Probably few such ideas deserve to survive, but a potential intellectual atom bomb may be smothered occasionally in this way, along with numerous senseless squibs.

Expert examination of projects put forward by brilliant young men from the depths of their ignorance is almost sure to result in proposals for modifications, because the experts will be able to point to examples which would seem to indicate that the original projects are unworkable. The vision of the experts is inevitably clouded by the fog of experience, while the young originator is seldom able to pierce this fog by the brilliance of his exposition or the keenness of his advocacy; indeed, his very youthful modesty will hinder him. The original projects, if they survive at all, will assume a final shape which the originator would scarcely recognize, and will become yet further modification of some established processes or procedures. Such metamorphoses of original proposals are a matter of common experience. Have we not seen organizations and systems get more and more complicated, overheads increase, staffs swell, as the needs of the post-war world have been met? Indeed, have not proposals, which were initiated to effect economies, sometimes resulted in increases in the very things it was hoped to reduce—and all because "experience" has led the experts to resist fundamental change?

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UNIQUE PROBLEMS DEMAND FUNDAMENTAL APPROACH

The rapidly changing conditions of the post-war era have posed a number of new problems of training and organization which have been met, and continue to be met, to a very large extent, by adaptation of existing processes and systems, which were designed originally to meet entirely different conditions. And yet the new problems arising as they do from such revolutionary events as the atom bomb, jet propulsion, guided missiles, balance of payments, the reconciliation of the idea of discipline with freedom of thought and criticism, the maintenance of morality where religious devotion has weakened, and so on, are often unique, and bear little relationship to problems of a previous era. The new problems, therefore, demand fundamental approach from first principles and are not likely to be met satisfactorily by adaptation and improvisation.

We are, then, faced with a situation which calls for the exploitation of the youthful qualities of intelligence and inexperience, but caution deters us from relying on youth in matters of any import. Must we accept this deadlock and continue to rely on the old ways of muddling through? There is a way in which youth could be given its fling, in the Services, at any rate; a rather fantastic way perhaps, but possibly deserving of a passing thought; a way which involves no great risk to the efficiency of the fighting machine but has possibilities of benefit. That way is provided by the National Service scheme.

FANTASY

Each year a large number of young men are called to the Services and most have no intention of remaining more than two or three years. These young men form a cross section of the youth of the country. They include university graduates, the trained thinkers, at one end of the scale, and unskilled workers at the other end. They might be used in a large-scale experiment to give youth a chance to show us how far we are going wrong in proceeding always according to precedent.

This rather fantastic experiment would involve the setting up of an establishment in some isolated spot of the Commonwealth, rather like that set up in America during the war for the atom bomb project, but on a much smaller scale, of course. This establishment would be manned by suitable regular and civilian personnel to provide all the amenities necessary to enable a large number of National Service young men to work on the tasks allotted to them, without interruption, diversion, or concern for domestic matters or any other matters not essentially associated with the main purpose of the establishment. A proportion of one year's National Service intake, amounting to, say, 2,000 men, would be posted to this establishment immediately on calling up and they would be instructed to organize themselves into an autonomous experimental unit. Leaders would have to be selected from among them at the start, of course, and their powers established, or anarchy might result. Problems of training and organization requiring *ab initio* approach would then be posed to this unit, which would be left undisturbed to present its solutions in due course after deliberation and experiment. No guidance would be given beyond that specifically asked for by the leaders of the unit and complete freedom would be allowed in working out the solutions to the problems set. Facilities, materials and apparatus would be provided on request, within reason.

The variety of intellectual levels among the National Service personnel would provide excellent opportunities for experimenting. The thinkers would enunciate

(*Continued on page 385*

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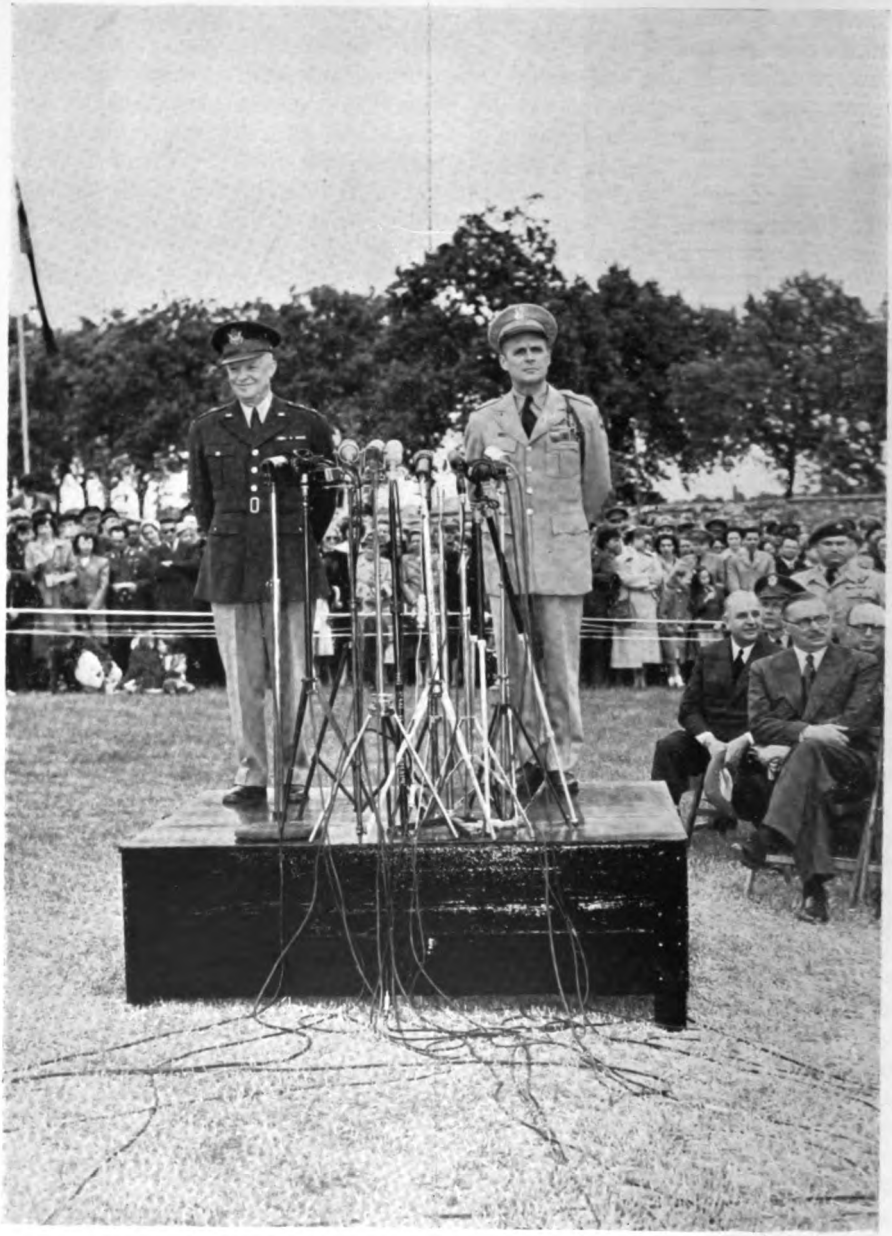

[Photo: S.H.A.P.E.

General Dwight D. Eisenhower, retiring Supreme Commander, and Matthew Ridgway, the new Supreme Commander, during the change in command ceremony held at S.H.A.P.E.

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S.H.A.P.E.

By "Station Master"

SUPREME Headquarters Allied Forces Europe, which was activated on 2nd April, 1951, is housed in a specially constructed hutted camp near the village of Marly le Roi, on the Versailles—St. Germain road. The site is conveniently close to the "Autoroute de L'Ouest," which permits access to the centre of Paris in twenty-five minutes by car. This Headquarters is new, and should not be confused with the original H.Q. of Western Union Allied Forces at Fontainebleau which has now become one of the subordinate formations of S.H.A.P.E., housing the combined staffs of Allied Land and Air Forces, Central Europe, and Flag Officer, Central Europe. The other two subordinate formations, controlling the Allied Forces of Northern and Southern Europe, are based at Oslo and Naples respectively.

Outside S.H.A.P.E. are fourteen flagstaffs where the flags of the nations which comprise the North Atlantic Treaty Organization are daily flown. These nations are Belgium, Canada, Denmark, France, Greece, Holland, Iceland, Italy, Luxembourg, Norway, Portugal, Turkey, the United Kingdom and the United States. Inside the building works the integrated Allied staff composed of officers from the various Services of all these nations, with the exception of Iceland and Portugal, the former having no armed forces and the latter belonging to the Atlantic Command. Each nation also has its own office of National Military Representatives, acting as agents for their national Chiefs-of-Staff. In addition, the British, French and Americans have their own Support Element troops for the administration of their own personnel.

Such, briefly, is the set-up in this first large-scale organization of peace-time co-operation in the military sphere. To complete the picture, reference must also be made to the higher rungs on this ladder. On the military side there is the Standing Group and the Military Members Committee in Washington, and on the governmental side the Secretary-General of N.A.T.O. and his staff in Paris.

Many are the problems created by the existence of this ever-growing organization, but it is only proposed in this article to discuss two aspects, first the practicability of so many different nationalities working together as an integrated staff, and secondly the ability of nations to continue providing the necessary backing for these staffs.

A lecturer at the Joint Service Staff College once emphazized the true meaning of compromise, so essential in joint staffs, by telling the story of the husband and wife who disagreed about going out to the cinema in the evening. The wife wanted to go and the husband did not, so after a certain amount of argument they "compromised" and went to the cinema. That, as he explained, was a bad example of compromise. If the need for mutual understanding and compromise is necessary between the three Services of one country, how much more important it is when the joint staffs contain different nationalities. Let us consider some of the difficulties which confront such an integrated staff. There are widely differing degrees of war experience gained by the armed forces of the various nations during the last quarter of a century, and particularly during the last war. Then there are the added problems of language, temperament, customs and national pride. One might be tempted to think that unity of understanding and effort

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[Photo: S.H.A.P.E.

Aerial view of S.H.A.P.E. Headquarters, Marly, France

could never be achieved, but the fact is apparent to anyone who has visited S.H.A.P.E. that a harmonious result has been produced.

The language problem has been simplified by the use of two official languages, English and French. In S.H.A.P.E., a Headquarters predominantly staffed by American and British officers, the language most commonly used in conversation is naturally English, but interpreters are available when required, and written documents are duplicated in French as necessary. In Allied Land Forces H.Q. at Fontainebleau, on the other hand, where French staff are in the majority, French is more commonly heard. Thus much has been done to overcome this impediment to efficient work, though one can only hope that the day will come when there is one universal language. Even with only two languages misunderstandings do arise, and the case may be quoted of the embarrassment caused to a junior Continental officer who took down a telephone message inviting his General, an American, to dinner which read "Come undressed, no smoking."

Differing temperaments and customs must be studied and treated with tolerance and understanding. National pride and sensitivity must be controlled, and war experience must be willingly pooled for the common good rather than proclaimed as evidence of superiority. The atmosphere to foster this outlook has been worked up by wise leadership, careful selection of staff officers, and the feeling that all members of the staff wear the same "international hat."

An instance of the pooling of experience is the adoption at S.H.A.P.E. of American ideas on troop welfare. Any visitor to S.H.A.P.E. will appreciate this when he sees that within the building the following facilities are provided: Officers' restaurant and bar, other ranks' cafeteria, kiosk for sundry goods (chocolate, cigarettes, etc.), military and civilian post offices, laundry and valeting services, hairdresser, and theatre booking office, while drinking-water

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fountains are found in the main corridor, and a bookstall is provided in the main entrance where a wide choice of daily papers, periodicals, maps and guides are for sale. The first bit of paper in most "In" trays comes from this stall every morning. Other facilities are a free hourly bus service between S.H.A.P.E. and Paris, and a specially requisitioned cinema in Versailles where American programmes are shown to S.H.A.P.E. personnel four times a week.

It would be unrealistic to suggest that the already adequately heated offices and corridors of the Headquarters never become overheated through emotional friction. This is inevitable and happens in the best regulated national H.Qs., but perhaps at S.H.A.P.E., where everyone knows that a special effort is required to see the other's point of view, the chances of a quick return to normal relations are improved.

The second basic problem mentioned is that of providing the necessary staff for the international Headquarters. The "P" staffs in all countries are having a bad time trying to produce the personnel to meet the growing requirements of S.H.A.P.E. and its subordinate formations. The representative of one of the smaller nations has been heard to say that they will soon have all their officers working in Headquarters organizing the development of their national forces which will have no officers to command them. Care has, of course, been taken to pick well-qualified officers to fill these posts initially, in order to get the H.Q. off to a good start, but the pace is not slackening and national forces, which themselves are faced with the difficulties of expansion, are finding it increasingly difficult to produce the required number of officers, at least from the active list. The problem is aggravated by the fact that the creation of these new Headquarters has done nothing to decrease the need for existing national Service Ministries and Headquarters; in fact it has given them much extra work. In the writer's view there are two bright spots on the horizon. One is that from now on the selection of national officers for international jobs should become easier in that the number possessing experience of this type of work is growing, and at the same time the jobs themselves are becoming more firmly established in recognizable form. Selection should therefore not have to be so precise. Secondly, as the years go by and experience is gained in the control and administration of international forces, it should prove possible to effect economies in the national overheads connected with the forces allotted to international commands. As the many complications of financing an international budget are mastered, and as the methods of exchanging information between international and national formations become regularized so will the duplication of effort be reduced, and economies made possible.

To summarize, S.H.A.P.E. has faced countless difficulties, but is mastering them. For this achievement much credit must go to the inspiring leadership of its first Commander, General Eisenhower, but behind it all is the whole-hearted support which has been forthcoming from national authorities.

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[Nat. Def. Canada Photo

PILOTS GET BRIEFING

Lieutenant R. T. Hoag, U.S.A.F., navigation briefing officer at Goose Bay, points out to pilots of the R.C.A.F.'s 439 jet fighter squadron the hazardous approach to Narsarssuak, Greenland, next stage of their transatlantic flight

[Nat. Def. Canada Photo

PRIOR TO DEPARTURE FROM OTTAWA

Defence Minister Brooke Claxton and Air Marshal W. A. Curtis, Chief of the Air Staff, wish members of 439 Fighter Squadron "bon voyage" when they are about to fly across the Atlantic to England in their F-86 Sabre jets

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OUR COMMONWEALTH AIR FORCES

ROYAL CANADIAN AIR FORCE

SABRES OVER THE ATLANTIC

WHEN twenty-one Sabre jet fighters of the R.C.A.F.'s 439 Fighter Squadron put down at North Luffenham last June the dying scream of their jet engines wrote "Finis" to "Leap Frog One," the transatlantic flight of the squadron to their new base in the United Kingdom.

The squadron became the first R.C.A.F. jet unit to make the Atlantic crossing, and unless current R.C.A.F. plans are changed, their flight will act as a pattern for others to follow, as R.C.A.F. fighter squadron strength overseas builds up to a twelve-squadron air division.

The crossing was made from Uplands, outside Ottawa, which had served as the home base for the squadron since its re-formation in late 1951. Under a brilliant blue sky twenty-one Sabres took off on the morning of 30th May to begin the first leg of their transatlantic crossing, heading for Bagotville, P.Q.

The fine weather which saw them off failed to hold for them, and it was not until 15th June that the squadron reached 1 R.C.A.F. Fighter Wing, North Luffenham. The flight was made in several stages, the Uplands-Bagotville leg being followed by a flight to the R.C.A.F. station at Goose Bay, Labrador, from which the actual ocean crossing began. From there the Sabres hopped to Bluie West One in Greenland, then to Keflavik, Iceland, and then across to R.A.F. Station, Kinloss, in Scotland. The final leg was from there to their new base at North Luffenham.

The flight was made safely, although an attack of appendicitis put the squadron's commanding officer, Squadron Leader Cal Bricker, D.F.C., out of the operation early during the crossing. A war-time Spitfire pilot, Squadron Leader Bricker was forced to make the ocean crossing aboard one of the accompanying R.C.A.F. North Star transports, and his place as leader was taken by Flight Lieutenant Bill Bliss, a flight commander with 439 Squadron.

His illness cost Squadron Leader Bricker the distinction of being the only R.C.A.F. member to make two jet crossings of the Atlantic. Previously, as an exchange officer on duty with the U.S.A.F., he had flown an F-84 over.

Known as "Leap Frog One," the operation as a whole was under the control of Air Transport Command, with Wing Commander Campbell Mussells, D.S.O., D.F.C., serving as task force commander. It was Wing Commander Mussells who headed 426 Thunderbird Squadron during its early days on the Korea airlift.

The majority of the squadron's groundcrew flew over in North Star transports

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from their Uplands home base a week before the departure of the Sabres. Other groundcrew, with servicing equipment, accompanied the Sabres on the ocean crossing, and provided maintenance facilities *en route*.

Two days before their departure from Uplands the squadron was inspected by Defence Minister Brooke Claxton, who referred to their coming flight as ". . . one of the greatest demonstrations of teamwork yet to be found in any operation, civil or military."

Mr. Claxton's address to the squadron included the following remarks:

"My first words are to congratulate officers and men of this squadron on the fine showing they have made today. The smartness of appearance, and the good general bearing of the men reflect hard work, good training and a fine team spirit. Good bearing and smart appearance are not ends in themselves, but means to an end.

"You can almost tell how good a unit is by seeing any single man. He is the sample which shows the standard of the unit and if he doesn't measure up he lets his unit down.

"A squadron equipped with Sabre fighters, the fastest operational jet aircraft today, must be the last word in teamwork. The object of all your training is to be able to find and engage and defeat an enemy and that requires the closest co-operation by aircrew and groundcrew alike. In a fighter squadron practice must make the right action instinctive as well as instantaneous.

"The fighters must be well led and well directed, which requires that the men operating ground control must have the best of equipment and know how to use it. Aircraft cannot even leave the ground safely unless the groundcrew are on top of their work and have a full sense of their responsibility for keeping the aircraft in the air.

"This is what makes this one of the greatest demonstrations of teamwork yet to be found in any operation, civil or military."

The Chief of the Air Staff, Air Marshal W. A. Curtis, C.B., C.B.E., D.S.C., E.D., paid tribute to the progress made by the squadron since it was re-formed in 1951, and reminded 439 personnel that they would be acting as trail-blazers on the ocean crossing. "While many of our squadrons will follow in your footsteps," he said, "to *you* goes the honour of being the first R.C.A.F. jet fighter squadron to fly overseas as a unit."

Arrival of 439 Squadron brought the R.C.A.F.'s Fighter Wing at North Luffenham to its full complement of three Sabre squadrons. Aircraft for the first two squadrons made the ocean crossing aboard H.M.C.S. *Magnificent*. The remainder of the twelve-squadron force that the R.C.A.F. is making available to N.A.T.O. is to fly over, according to present R.C.A.F. planning, and they will be based on the Continent. The first R.C.A.F. continental base will be near Metz, and it is expected that the first squadrons destined for duty there will make the ocean crossing this year.

In process of formation now is a R.C.A.F. Air Material Base at Langar, not far from North Luffenham, which will provide logistics support for No. 1 Fighter Wing and for other R.C.A.F. fighter formations to come into being on the Continent.

439 Squadron saw service during the Second World War, operating from Britain and from the Continent with Hurricanes and Typhoons. The squadron was disbanded in August, 1945, after marking up an enviable record on fighter-bomber operations. It was re-formed in September, 1951.

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SOUTH AFRICAN AIR FORCE

U.D.F. OFFICERS BEING INSTRUCTED IN ATOMIC WAR DEFENSIVE TACTICS

OFFICERS and other ranks of the Union Defence Force on a course at the South African Military College are being instructed in defensive tactics to be used in an atomic war. This is the first step being taken to prepare South African Forces against atomic, bacteriological and chemical war. A meeting in this connection has been held in Johannesburg. Attended by doctors, it was addressed by the Surgeon-General of the U.D.F., Brigadier W. H. du Plessis.

S.A.A.F. SQUADRON IN KOREA COMPLETES EIGHT-THOUSANDTH SORTIE

No. 2 S.A.A.F. Squadron in Korea has completed its 8,000th sortie against the Communists recently, when Lieutenant Gardiner-Atkinson landed at the forward air base after completing an interceptory mission. The number of pilot casualties in the S.A.A.F. is now thirty-six killed, missing or prisoner-of-war. The number of aircraft lost in accidents around air bases and in operations is about fifty-five, valued at more than £1,000,000.

JETS FOR SOUTH AFRICAN AIR FORCE

Speaking at Wolseley on 14th June, the Minister of Defence, Mr. F. C. Erasmus, said the South African Air Force would soon be equipped with a further thirty Vampire jet aircraft. That would bring the number of jet aircraft to fifty. In addition, South African pilots in Korea would be equipped with the latest model American jets probably before the end of the year. The aircraft would most likely be the F-86 type. Twenty-four Harvards had also been purchased from the United States and a further twenty had been ordered, bringing the number of Harvards to approximately 260.

AMERICAN AWARDS FOR SOUTH AFRICAN AIRMEN

The following awards to South African airmen in Korea were announced by Defence Headquarters in Pretoria:

First Oakleaf Cluster to the American D.F.C. to Lieutenant J. A. Joubert for displaying extraordinary leadership and outstanding heroism during 175 combat sorties against the enemy. Lieutenant Joubert is the first South African to receive this award, which is equivalent to another D.F.C. or a Bar to the D.F.C. The American Distinguished Flying Cross to Lieutenant R. W. Clark, for outstanding leadership, aggressiveness and skill in action against the enemy. Other awards are five Bronze Stars, five Oakleaf Clusters to Air Medals and five Air Medals.

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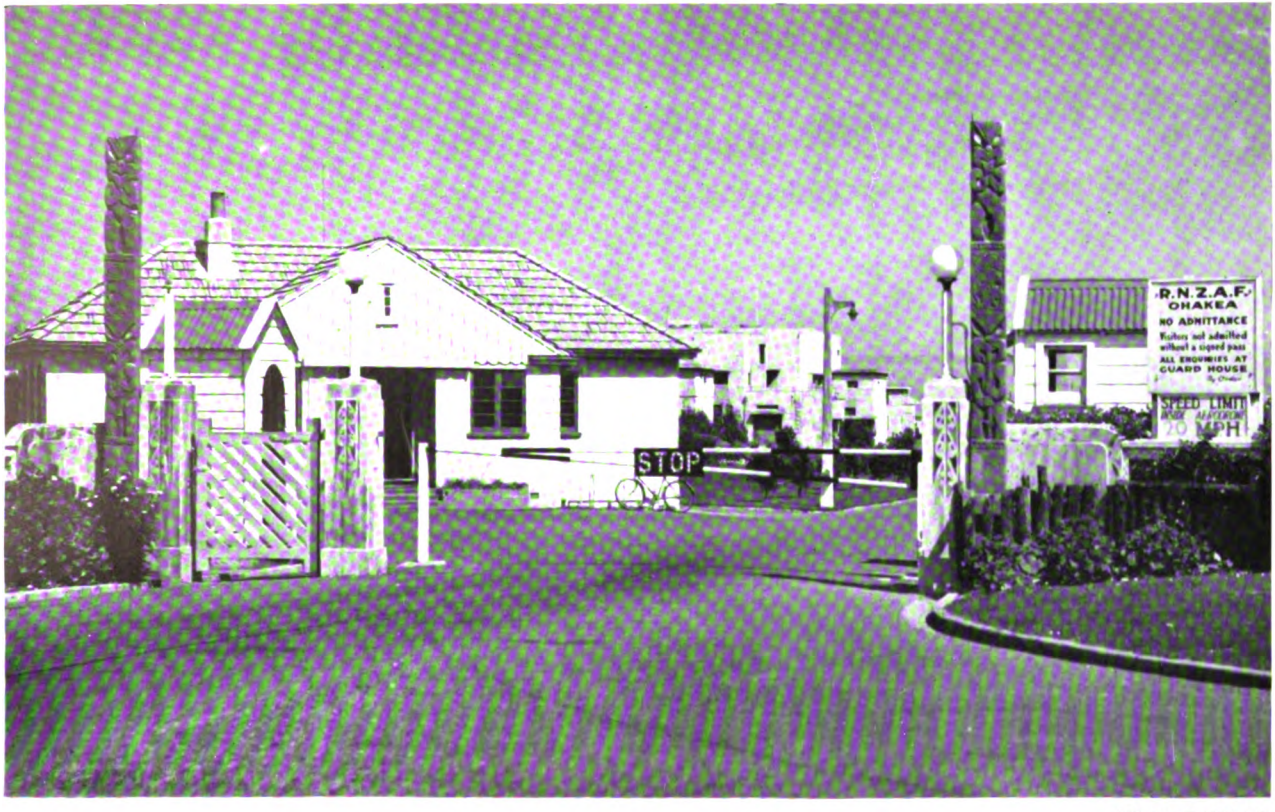

[Photo: R.N.Z.A.F.

R.N.Z.A.F. STATION, OHAKEA

Maori carvings are seen on each side of the main gate, with guard house on the left

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ROYAL NEW ZEALAND AIR FORCE

THE R.N.Z.A.F. AT HOME

By P. D. C.

THE Royal New Zealand Air Force could be called a scaled-down version of the larger Air Forces of Britain and the other Dominions. In this article it is hoped to show how and where a few thousand airmen, spread over ten stations and depots, live and play. The roles of our stations and our own duties are a separate story.

A brief run through from north to south mentioning the larger stations will show the distribution of our Service.

The R.N.Z.A.F.'s only permanent station outside New Zealand itself is in Fiji, at Lauthala Bay, base of No. 5 (Flying Boat) Squadron. "The Bay," after withstanding the severe hurricane of last February, is well advanced in reconstruction.

Near the "Queen City" of Auckland, in New Zealand's North Island, are two neighbouring stations, Hobsonville and Whenuapai. Hobsonville, location of the R.N.Z.A.F.'s Technical Training School and of No. 6 (Maritime) Squadron, is built on a peninsula on the upper reaches of Auckland Harbour. Few persons would not agree that Hobsonville, with its seascapes and surrounding hills, is scenically our most attractive station—at high tide. (There are some mud-flats at low water.)

Two miles inland lies Whenuapai, the Maori name meaning "good land." Completed for the R.N.Z.A.F. in 1940, Whenuapai is also New Zealand's busiest international airport. Despite the 200,000 civilian passengers who pass through the main gate yearly, however, it is essentially Service in character.

Several hundreds of miles to the south lies Ohakea, which, translating from the Maori again, means "windy plain."

R.N.Z.A.F. Headquarters, located in the capital city of Wellington, is supported by Shelly Bay, an establishment which, once a naval base, now largely fills the accommodation needs of the Headquarters staff.

Generally noted for its agreeable climate, R.N.Z.A.F. station Woodbourne (comprising a repair depot, a Boy Entrants' School and an aircraft park) is at the north end of the South Island, across Cook Strait. Sunshine records for all R.N.Z.A.F. units are surely held by Woodbourne.

Cradle of R.N.Z.A.F. aircrew—and, for that matter, of aviation in New Zealand—is Wigram, largest of our stations. Here are four aircrew schools, besides the Electrical and Wireless School, and various ground training units. Adjacent lies Christchurch, the Dominion's second largest city. Royal Air Force visitors to New Zealand feel most at home in this the most English of our towns.

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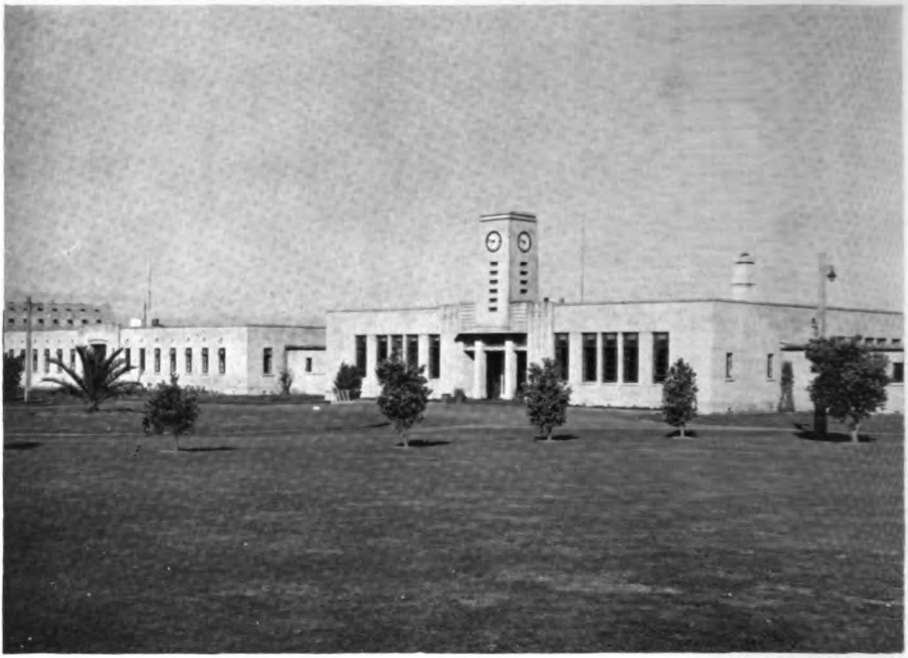

[Photo: R.N.Z.A.F.

Officers' Mess, Ohakea

[Photo: R.N.Z.A.F.

The Station Cinema and left corner part of Sergeants' Mess, Ohakea

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Farthest south, in an upland valley near Dunedin, "the Edinburgh of the South," is R.N.Z.A.F. station Taieri. Here the task is initial training of aircrew enlisted under the Compulsory Military Training Scheme.

Members of the R.N.Z.A.F. manning these stations have similar ranks and generally much the same organization as the R.A.F. Trade classifications vary, but ex-members of the Royal Air Force now with us are very soon at home.

It is necessary to say something of the manpower available to the Air Force in New Zealand. Maoris, having in all things equality of status in this country, must comprise at least 10 per cent. of the total strength—the estimate is my own —and they are evenly distributed through all trades. They live and work as valuable tradesmen, from nursing orderlies to pilots. The Women's Auxiliary Air Force is no exception, having many Maori girls in its ranks.

Post-war recruiting from a war-weary civilian market was not encouraging in the R.N.Z.A.F., as was found the case in most other Air Forces. A scheme to bring former R.A.F. and W.R.A.F. personnel to New Zealand assisted the Service here over a difficult period. Several hundreds of Service emigrants from the United Kingdom are now serving with the R.N.Z.A.F. An indirect result of this migration has been the introduction of association football as a Service sport. In a predominantly rugby-minded country, the R.N.Z.A.F. soccer team came very close to winning the Soccer League one year.

STATION LAYOUT

There is no standard layout of R.N.Z.A.F. stations, although Whenuapai and Ohakea are similar architecturally. There is no dispersal of buildings. All stations are compact, the domestic areas being close to the technical areas. Most stations have a central playing field.

Wooden buildings are common, except on the two stations mentioned above. The predominance of wood is usual in New Zealand, and is natural in a country which for a hundred years has been clearing much of its native forest to obtain grazing and development space. Many of the wooden buildings were erected in the war expansion years and are well founded, even if not very ornamental.

However, the plainer buildings are offset by well-kept lawns and attractive gardens. Ministry of Works civilians have landscaped widely. Noteworthy at Whenuapai are the lawn-fringed stream dividing the camp and the roadside flowering cherries. At Ohakea a patch of native bush has survived and Pohutukawa trees, red-blossomed in season, line the station roads. Wigram has fine flower gardens and in spring the station name spelt out in daffodils is conspicuous from the air. Here the beeches and oaks have been chosen for the roadside, the latter ten-year-old trees being part of a long-term plan.

In Fiji, at Lauthala Bay, there are all the "props" of a tropical island. The domestic area, on a rise, overlooks a reef, some islets, a lagoon and the inevitable coconut palms.

STATION QUARTERS

On most R.N.Z.A.F. stations barrack blocks have been designed to place everything under one roof. Messes, dormitories, ablutions and the station social hall (housing the cinema) were all planned in one building. With station growth exceeding the "one-squadron" size originally allowed for on some stations, satellite buildings known as "H" (shaped) blocks have been added.

Generally, there are eighteen beds to a dormitory. Some stations subdivide dormitories into four-bed cubicles. All N.C.Os. and, in some cases, leading aircraftmen have individual rooms.

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[Photo: R.N.Z.A.F.

Typical Airman's Quarters

Outside laundry services on most stations are slow and expensive, and shilling-in-the-slot automatic washing machines have been installed by a private contractor in station laundries. These, together with drying rooms and irons supplied from non-public funds, have proved popular, particularly in summer months when khaki drill is worn.

HOUSING

Married quarters on some stations average one hundred houses for all ranks. They are substantial, detached houses and they provide from five to ten rooms. Where housing has been a particularly anxious matter, surplus "H" blocks have been converted to flats. Normally this temporary living space is regarded as "transit" quarters for those awaiting a station house. The points system of allocation has been borrowed from the R.A.F. Quarters are not furnished, but some items of heavy furniture may be hired through the barrack warden. Blinds and linoleum installed in houses are hired at a nominal sum as an addition to rent.

The Government Housing Scheme, which has built over 8,000 units in the past ten years, makes available a percentage of building as "departmental houses," which are available to all public servants on transfer or to Service personnel on posting. Housing is not easy in the R.N.Z.A.F., for as quarters are built so does the inducement value favour recruiting.

AMENITIES

There is no N.A.A.F.I. in the R.N.Z.A.F., although two organizations perform similar work—scaled down. The Young Men's Christian Association looks after the airmen and airwomen both with on-the-job deliveries of tea and cakes for breaks and after hours in the "Y.M." buildings established on every station. The buildings provide cafés, quiet rooms and billiard tables, and the Chaplain has his office therein.

The wet and dry canteens are provided by the Canteen Council, a three-Service organization which is a lodger unit in Service buildings. This organization also provides a cinema service.

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PROMOTIONS AND APPOINTMENTS

Among the promotions and appointments announced by the Air Board since the last issue of this Journal are the following:

PROMOTIONS

[*Photo: Spencer, Digby*

Group Captain A. H. Marsh, M.B., Ch.B., D.T.M. & H.(Eng.), Director of Medical Services, R.N.Z.A.F.

To Group Captain:

Wing Commander A. H. Marsh, M.B., Ch.B., D.T.M. & H.(Eng.).

To Wing Commander:

Squadron Leader A. H. Harding, D.F.C.
Squadron Leader C. H. Baigent, D.S.O., D.F.C., A.F.C.
Squadron Leader B. R. Furkert.

APPOINTMENTS

Wing Commander T. J. McL. de Lange, D.F.C., to be Deputy Director of Organization, Air Department.

Wing Commander C. C. N. Johnston, M.B.E., B.Com., A.A.I.I., A.R.A.N.Z., to be Assistant Air Member for Personnel.

Wing Commander B. R. Furkert to be Director of Manning.

RELINQUISHMENTS

Wing Commander J. G. Priest, R.A.F., relinquishes the appointment of Director of Armament on his return to the Royal Air Force following a two-year period of exchange duty.

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CURRENT EVENTS

R.N.Z.A.F. SQUASH TOURNAMENT

IN the finals at Woodburn (Blenheim) in July, Squadron Leader S. M. Hope, M.B.E., Officer Commanding No. 14 Squadron, very easily defeated Flight Lieutenant N. H. Bright (Whenuapai).

The Teams Championship for the Scholes Cup was won by R.N.Z.A.F. Station, Ohakea.

Squadron Leader A. D. Caird (Whenuapai) won the Handicap Competition, and Flying Officer S. Richards (Ohakea) the Plate Competition.

A NEW FLYING-BOAT SQUADRON FORMED

Under the Command of Squadron Leader R. L. Scott, D.F.C., No. 6 (Maritime) Squadron has formed at Auckland. Its present Catalina flying-boats will be replaced later with Sunderlands.

FLYING COURSES FOR UNIVERSITY STUDENTS

To provide a flow of pilots for Territorial Air Force squadrons, special flying training courses for twelve students a year are now being held.

OFFICIAL SQUADRON BADGE APPROVED. (No. 14 (FIGHTER) SQUADRON)

Her Majesty The Queen has approved the official badge for No. 14 (Fighter) Squadron, R.N.Z.A.F., which depicts a Kea in perching position, symbolic of those fearless and aggressive qualities proper to a fighter squadron. The motto, "Kia Maia, Kia U, Kia Ngawari," may be translated as "Active, Ardent, Adaptable."

The badge will be presented by the Chief of the Air Staff (Air Vice-Marshal D. V. Carnegie, C.B., C.B.E., A.F.C., R.A.F.) before this squadron leaves for its new base in Cyprus, Middle East, in September.

Nearly three times the number of men required have applied from within the R.N.Z.A.F. for ground duties overseas with this squadron.

TERRITORIAL SQUADRONS TO HAVE MUSTANG FIGHTERS

The Auckland, Wellington and Canterbury Squadrons are to be re-equipped with Mustang fighter aircraft. No. 4 (Otago) Squadron has had Mustangs since August, 1951.

INTERNATIONAL MEETING OF MILITARY SURGEONS

The Association of Military Surgeons of U.S.A. have issued world-wide invitations to surgeons of the Defence Forces to attend their next Annual Meeting at the Statler Hotel in Washington, 17th, 18th and 19th November, 1952. An outstanding scientific programme has been arranged.

It is at the express wish of the President, Major-General Harry G. Armstrong, the Surgeon-General of the U.S.A.F., that this notification is published in THE ROYAL AIR FORCE QUARTERLY.

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CONCERNING R.A.F. PERSONNEL

Among the promotions and appointments announced by the Air Ministry since the issue of the July, 1952, number of this JOURNAL are the following:

PROMOTIONS

The following Royal Air Force half-yearly promotions were effective on 1st July, 1952:

AIR VICE-MARSHAL TC AIR MARSHAL

J. D. I. Hardman, K.C.B., O.B.E., D.F.C. (Acting Air Marshal). On loan to Australian Government as Chief of Air Staff, R.A.A.F.

AIR VICE-MARSHAL TO AIR MARSHAL

C. A. Stevens, C.B., C.B.E., M.C. (Acting Air Vice-Marshal). Senior Air Staff Officer, Home Command.

H. A. Constantine, C.B., C.B.E., D.S.O., Director of Intelligence, Air Ministry.

L. F. Sinclair, G.C., C.B., C.B.E., D.S.O., Air Officer Commanding, R.A.F. College, Cranwell.

H. V. Satterly, C.B., C.B.E., D.F.C., Air Officer Commanding, No. 205 Group from this month.

A. W. B. McDonald, C.B., A.F.C., Officer Commanding, The Aeroplane and Armament Experimental Establishment, R.A.F., Boscombe Down.

GROUP CAPTAIN TO AIR COMMODORE

General Duties Branch

R. K. Hamblin, C.B.E.
A. G. Adnams.
A. D. Selway, C.B., D.F.C.
W. S. Hebden.
A. Earle, C.B.E.
L. W. C. Bower, D.S.O., D.F.C.
W. H. Kyle, C.B.E., D.S.O., D.F.C., A.D.C.
W. C. Sheen, D.S.O., O.B.E.

Equipment Branch

W. F. Langdon, C.B.E.
J. E. R. Sowman.

Medical Branch

A. F. Cook, O.B.E., L.R.C.P. & S., D.P.H.

Education Branch

C. L. M. Brown, O.B.E., M.A., A.D.C.

Technical Branch

H. H. Chapman, C.B.E., A.M.I.E.E.

WING COMMANDER TO GROUP CAPTAIN

General Duties Branch

F. C. Richardson.
P. G. Wykeham Barnes, D.S.O., O.B.E., D.F.C., A.F.C.
L. F. Brown.
P. B. Wood.
J. D. Ronald, A.F.C.
A. F. Anderson, D.S.O., D.F.C.
C. R. J. Hawkins, O.B.E., A.F.C.
A. H. Smythe, D.S.O., D.F.C., A.F.C.

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PROMOTIONS: *Wing Commander to Group Captain—contd.*

R. J. B. Burns, O.B.E.
P. A. Lombard, D.F.C.
J. Rankin, D.S.O., D.F.C.
E. A. Warfield, C.B.E., D.F.C.
C. W. K. Nicholls, D.S.O., O.B.E.
C. M. Wight-Boycott, D.S.O.
O. R. Donaldson, D.S.O., O.B.E., D.F.C.
C. H. Hartley, O.B.E., D.F.C., A.F.C.
T. O. Prickett, D.S.O., D.F.C.
R. B. Thomson, D.S.O., D.F.C.
W. E. Coles, C.B.E., D.S.O., D.F.C., A.F.C.
S. P. Hagger.
E. L. Colbeck-Welch, O.B.E., D.F.C.
P. C. Hilton.
A. G. Dudgeon, D.F.C.
J. A. Kent, D.F.C., A.F.C.
R. C. Ayling, O.B.E.

Technical Branch

G. L. S. Griffith-Jones, M.A.
N. D. Gilbart-Smith.
D. W. Williams, O.B.E., A.F.R.Ae.S.
J. W. Bayley, M.B.E.

Equipment Branch

W. A. Lee.
W. J. Stutchbury.

Secretarial Branch

C. G. Sharp.
W. N. Hibbert.

R.A.F. Regiment

J. G. Flewett, D.S.O.

Medical Branch

J. W. Patrick, M.B., B.Ch., D.P.H.
J. S. Wilson, M.B., Ch.B., D.P.H.
R. L. Soper, M.R.C.S., L.R.C.P., F.F.A.R.C.S., D.A.
L. M. Crooks, O.B.E., M.B., M.Ch., F.R.C.S.

Dental Branch

S. C. Allen, L.D.S.
F. F. Kennedy, L.D.S.
R. Scoggins, L.D.S.

Education Branch

E. Knowles, M.B.E., B.Sc.

Provost Branch

B. W. S. Smith.

APPOINTMENTS

AIR MINISTRY

Air Marshal Sir John Whitworth Jones, K.C.B., C.B.E., as Air Member for Supply and Organization.

Air Marshal Sir Francis J. Fogarty, K.B.E., C.B., D.F.C., A.F.C., as Air Member for Personnel (1st November, 1952).

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Air Marshal Stephen Charles Strafford, C.B., C.B.E., D.F.C., as Inspector-General of the Royal Air Force.

Air Marshal Robert Owen Jones, C.B., A.F.C., as Controller of Engineering and Equipment.

Air Vice-Marshal Sir Francis J. W. Mellersh, K.B.E., A.F.C., as Commandant-General of the Royal Air Force Regiment.

Air Vice-Marshal Leslie John Vernon Bates, C.B., C.B.E., as Director-General of Equipment.

Air Commodore Robert Carter Jonas, O.B.E., as Director of Intelligence.

Air Commodore W. H. Kyle, C.B.E., D.S.O., D.F.C., A.D.C., as Director of Operational Requirements (A).

Air Commodore J. B. M. Wallis, O.B.E., as Director of Administrative Plans.

Air Commodore M. D. Ommanney as Director of Organization (Establishments).

BOMBER COMMAND

Air Marshal George Holroyd Mills, C.B., D.F.C., as Air Officer Commanding-in-Chief (April, 1953).

HOME COMMAND

Air Marshal H. T. Lydford, C.B., C.B.E., A.F.C., as Air Officer Commanding-in-Chief.

Air Commodore G. T. Jarman, D.S.O., D.F.C., as Air Officer Commanding, No. 63 Group.

FLYING TRAINING COMMAND

Air Marshal Laurence Fleming Pendred, C.B., M.B.E., D.F.C., as Air Officer Commanding-in-Chief.

FIGHTER COMMAND

Air Vice-Marshal Hugh Alex Constantine, C.B., C.B.E., D.S.O., as Air Officer in Charge of Administration.

TECHNICAL TRAINING COMMAND

Air Vice-Marshal Walter Hugh Merton, O.B.E., as Air Officer Commanding, No. 22 Group.

MAINTENANCE COMMAND

Air Vice-Marshal Harold Douglas Jackman, C.B., C.B.E., as Air Officer Commanding No. 40 Group.

SCHOOL OF LAND/AIR WARFARE

Air Vice-Marshal Laurence Frank Sinclair, G.C., C.B., C.B.E., D.S.O., as Commandant.

CRANWELL

Air Commodore Henry Eeles, C.B.E., as Air Officer Commanding and Commandant of the R.A.F. College.

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AEROPLANE AND ARMAMENT EXPERIMENTAL ESTABLISHMENT

Air Commodore A. H. Wheeler, O.B.E., as Commanding Officer.

MALAYA

Air Vice-Marshal F. R. W. Scherger, C.B.E., D.S.O., A.F.C., Royal Australian Air Force, as Air Officer Commanding.

IRAQ

Air Vice-Marshal J. G. Hawtrey, C.B.E., as Air Officer Commanding.

FAR EAST AIR FORCE

Air Vice-Marshal W. J. M. Akerman, C.B.E., as Air Officer in Charge of Administration.

MALTA

Air Vice-Marshal B. V. Reynolds, C.B.E., as Air Officer Commanding.

MIDDLE EAST

Air Vice-Marshal H. V. Satterly, C.B., C.B.E., D.F.C., as Air Officer Commanding, No. 205 Group.

GERMANY

Air Commodore J. G. Flewett, D.S.O., as Senior Ground Defence Staff Officer at H.Q., 2nd T.A.F.

RETIREMENTS

Air Chief Marshal Sir Leslie N. Hollinghurst, G.B.E., K.C.B., D.F.C. (November, 1952).

Air Chief Marshal Sir Hugh P. Lloyd, K.C.B., K.B.E., M.C., D.F.C., LL.D. (April, 1953).

Air Marshal Sir Hugh S. P. Walmsley, K.C.B., K.C.I.E., C.B., C.B.E., M.C., D.F.C.

HONOURS AND AWARDS

The award of the Distinguished Flying Cross for service in Korea to:

Flight Lieutenant Colin Ian Blyth, A.F.C., No. 77 Squadron, R.A.F.
Flight Lieutenant Maxwell Scannell, A.F.C., No. 77 Squadron, R.A.F.

The award of the Distinguished Flying Cross for service in Malaya:

Acting Squadron Leader Ayshford Peter Norman.
Flight Lieutenant William Banks.
Flight Lieutenant Kenneth William Johnson.

Second Bar to Distinguished Flying Cross:

Squadron Leader Wilfred George Gerald Duncan Smith.

Distinguished Flying Medal:

Sergeant Alan Limbert.

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CURRENT EVENTS

The Royal Air Forces Association

Her Majesty The Queen has graciously consented to become Patron of the Royal Air Forces Association.

[Photo: Gale & Polden Ltd.

STUDY IN CONCENTRATION.—One of the many W.R.A.F. competitors at the record-breaking R.A.F. Championship Meeting was twenty-two-year-old Pilot Officer Joan Smith, of R.A.F. Station, Felixstowe, who served four years in the ranks before she was commissioned but had not handled a Service rifle until three months ago

More R.A.F. Pilots for Korea

More Royal Air Force pilots are being posted for service in Korea under an expansion of the exchange posting scheme between the R.A.F., Commonwealth Air Forces and the United States Air Force. The object of this development is to create a nucleus of R.A.F. fighter pilots with first-hand combat experience against the types of fighter aircraft now being used by the Communist forces in Korea.

Pilots for service in Korea are selected from Fighter Command and from the Second Tactical Air Force in Germany. Pilots from T.A.F. squadrons are to be posted to U.S.A.F. F-84 Thunderjet squadrons operating in the ground attack role in Korea. These pilots will first undergo conversion training in the U.S.A.

R.A.F. pilots serving in Korea under these arrangements will complete an operational tour lasting between six and nine months, and will then be replaced by other R.A.F. pilots.

Help for British North Greenland Expedition

Five Sunderland flying-boats of R.A.F. Coastal Command and two Hastings of Transport Command were flying in the Arctic Circle during July, August and September to assist the British North Greenland Expedition.

The Sunderlands operated from a lake never before used by flying-boats, the Hastings making a supply drop over central Greenland at a point about 800 miles from the North Pole.

Apart from making an essential contribution to the success of the expedition, these flights were of considerable training value to the Royal Air Force, giving crews experience of cold-weather flying, navigation in the region of the magnetic pole, and in operating from advanced bases with the minimum of equipment.

U.S.A.F. Air Division for United Kingdom

The 49th Air Division, made up of a wing of North American B-45 Tornado light jet bombers and a wing of Republic F-84G Thunderjet fighter-bombers, will move to the United Kingdom soon from Langley AFB, Va.

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New Headquarters for Allied Air Forces, Central Europe

Site of the new layout is a thin triangular clearing in the forest of Fontainebleau, 100 acres in area and on this has been erected a total of forty structures of varying sizes. Besides provision of working space for all A.A.F.C.E., personnel living quarters and messing facilities are available to 550 persons (roughly 512 airmen or other ranks and 38 bachelor officers).

The buildings, widely dispersed throughout the tree-shaded area, contain 494,960 square feet of floor space. The largest is the main headquarters structure, a two-storey, five-winged building containing 232 rooms and 73,824 square feet.

The building and equipment has cost more than £3,000,000.

University Air Squadrons to Provide Pilots for R.Aux.A.F.

A new source of pilots for the Royal Auxiliary Air Force is being found in the University Air Squadrons, among members who have done their full-time National Service before entering the university. Some of these have expressed a wish to join a flying squadron of the R.Aux.A.F. after leaving the university, and arrangements have been made for advanced flying training for those selected for admission in this way.

The training received on Chipmunk aircraft in a U.A.S. is insufficient to qualify for admission into the R.Aux.A.F., and nineteen Harvard aircraft are now being provided to enable selected volunteers to obtain at least thirty hours on an advanced trainer in preparation for a three-month course at a Flying Training School in R.A.F. Flying Training Command.

Those successful at this course will be awarded their "wings" and will be eligible to enter the R.Aux.A.F. Their training on jet fighters will be given after joining their squadron.

Young Pilots! Salute a Grand Old Man

To those young pilots who are apt at times to say, "There is no future in it," we would draw attention to that veteran of the Boer War, who after distinguished service in the First and Second World Wars, earlier this year flew his Tiger Moth to victory in the 1952 Kenya Aerial Derby at Nairobi West Aerodrome. This Peter Pan of aviation is Brigadier-General Arthur Lewin, C.B., C.M.G., D.S.O., now in his 78th year.

No. 70 Squadron wins Vickers Trophy

The Vickers Trophy, a silver model of a Valetta aircraft mounted upon a spiralling silver base, presented by Vickers Armstrong Ltd. for annual competition between medium-range transport squadrons and the larger communications units of Middle East Air Force Command, has been awarded to No. 70 Squadron of Middle East Air Force Transport Wing based in the Suez Canal Zone.

During the recent Anglo-Egyptian emergency the squadron played a large part in the airlift of thousands of troops and tons of equipment and supplies into the Canal Zone from Cyprus and elsewhere in the Middle East.

"The Tigers" win Weather Flying Trophy for Second Time

No. 74 Squadron—"The Tigers"—were the 1952 winners of the Duncan Trophy, awarded to the day squadron of R.A.F. Fighter Command achieving the best all-weather flying record. The position of runner-up was awarded jointly to Nos. 1, 56 and 63 Squadrons. The previous holders were No. 2 Squadron, 2nd Tactical Air Force.

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2nd T.A.F. Mechanical Transport Competition

The Commander-in-Chief, 2nd Tactical Air Force, Air Marshal Sir Robert Foster, recently presented the 2nd T.A.F. Mechanical Transport Efficiency Pennant to this year's winners—No. 20 (Light Anti-Aircraft) Squadron, Royal Air Force Regiment. The runners-up were No. 317 Supply and Transport Column, who had previously won the competition three times running, and No. 401 Air Stores Park.

Ejectable Seat Capsule for U.S. Naval Pilots

A parachute-equipped ejectable seat capsule has been developed for use aboard multi-plane Navy aircraft flying at speeds up to 1,200 m.p.h. and at altitudes above 45,000 feet. The capsule, constructed of armour plating and Fiberglas skins and cores, is designed not only to protect the pilot or crewmen against supersonic air streams and intense cold of the upper air but also to protect him from fire and flak while floating downward.

The Cost of Rocket-powered Pilotless Aircraft

A short but supersonic life is that of rocket-powered pilotless aircraft used by the National Advisory Committee for Aeronautics, one of the major contributors to accelerated research on the basic problems of supersonic flight. The research model takes 3,000 man-hours to build. It ranges from 6 to 10 feet in length, weighs 75 to 250 pounds, houses complex electronic equipment to measure roll, pitch, acceleration, lift, drag, altitude, angle of attack and many other factors which are telemetered back to the ground. Yet once the model is launched, its operating life ranges from seven to fifteen seconds!

Aircraft Designers Plan Three-deck Freighters for Cargo Fleet

British aircraft designers are planning ahead for a great expansion of commercial aviation which, experts believe, will parallel the great growth of merchant shipping which brought such prosperity at the turn of the century.

Among these plans is a design for a three-decker freight aircraft with lifts between its decks. It is a version of Europe's largest cargo aircraft, the Blackburn, Mark 2, four-engined, 55-ton Universal Freighter, the prototype of which is due to fly early next year.

The two lower decks will house cars and other vehicles. The passenger cabin and crew compartments are up on the third deck. Passengers reach their cabin by a flight of stairs.

Miniature Refrigerator Keeps Jet Pilots Cool

An underground factory built in the Second World War has been reopened by a British company and has begun super-priority work for the aircraft programme. It is building the small refrigerator units which go into the cockpits of jet fighters to cool down high-speed pilots. Any heat from the sun is added to by skin friction between outside air and the fuselage.

The factory, near the Thames in Berkshire, is a series of tunnels burrowed into a hillside. It is 250 feet below the summit.

Aircraft Industry Expands Training for Youth of Jet Era

The Rolls-Royce apprentice school, laid out as a small self-contained factory, which recently began to train hundreds of young boys in gas-turbine engineering, is one more example of the aircraft industry's expanding training scheme for the jet age.

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Guided Rockets and Rocket Motors

The time is not far off when British industry will go into quantity production with high-speed, pilotless missiles.

Rocket-powered guided missiles have been developed which can travel at well over 2,000 m.p.h. and can rise to heights far greater than any bomber is likely to reach for many years to come. They are capable of rapidly altering course, as they would have to do to intercept aircraft taking evasive action. In fact, they can twist and turn with four or five times the degree of manœuvrability of a fighter aircraft.

The power plants of some of the guided missiles of the future will be rocket motors so powerful that they will leave the jet engine behind in a "standing start."

The rocket motor's great advantage over the jet is that it does not rely on oxygen from the atmosphere—it carries its own with it. Nor, like the propeller, does it need an atmosphere to push against; it gets its forward thrust from the reaction within the motor.

The rocket motors now being developed use liquid fuels. Unlike the solid fuel types, these have many of the flexible characteristics of any other type of power plant—they can be cooled, and they can also be switched on or off quite easily, or run at a fraction of their full power.

A secondary task for the rocket motors is to give an auxiliary boost to the jet-powered aircraft for short periods on take-off, climb or in combat.

Super-priority Service Jets at S.B.A.C. Display

At the time of preparing this number of the JOURNAL, arrangements are nearing completion for the S.B.A.C. Display from 1st to 7th September.

This will be an event of the past by the time THE ROYAL AIR FORCE QUARTERLY emerges from the somewhat lengthy process involved in its production.

Great Britain's six super-priority aircraft will have been seen in flight by thousands of spectators:

The six are: The Vickers Valiant four-jet bomber; the English Electric Canberra two-jet medium bomber; the Hawker Hunter and Supermarine Swift swept-wing, single-seat jet fighters; the delta-wing Gloster GA-5 all-weather and night radar fighter; and the carrier-borne Fairey Gannet, the turboprop "submarine killer."

The de Havilland 110, another 600-m.p.h. all-weather fighter, will also be making its debut.

A number of aircraft still on the secret list will be at the Display if, as expected, they make their first flights in time. There will also be a display by experimental research aircraft built to test the wing shapes of the future—among them the delta or "flying triangle" design. New jet engines will be shown in "flying test beds."

Altogether about fifty different types will be on show, two-thirds of them jets. These aircraft will be demonstrated to their limits by Britain's finest test pilots.

A sign of the times will be the number of helicopters on display at Farnborough.

Britain's New Submarine Killer

The Avro Shackleton, Mark 2, faster and more powerfully armed than the Mark 1, is making good progress in its test flights. The new armament consists of two 20-mm. cannon in the nose. The aircraft is powered by four Rolls-Royce Griffon engines.

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New Radar Aid Screens Approaching Aircraft

Simple automatic radar control of airliners from the moment they approach the airfield to the point where they halt on the tarmac to unload passengers, has been brought a stage nearer by an airfield radar set which "screens" a picture of anything up to fifteen miles round the control tower.

Britain Speeds Work on Guided Missiles

Alongside super-priority production of aircraft for the fighting Services, an increasingly large section of the British aircraft industry is at work on guided missiles, the air weapons of the future. Test missiles and their engines are being produced for the Ministry of Supply.

In the next few months there will be a great expansion in the work at Woomera on weapons and their guidance systems. An Australian-built target aircraft has already been flown with a small British Armstrong-Siddeley Adder jet engine, and British-built expendable engines and ram jets are shortly to be tried out in the air.

Upside Down in a Jet on a Dark Night

"Upside down with nothing on the clock but the maker's name"—this phrase is rapidly going out of fashion with jet-age pilots. The reason is that the latest Royal Air Force fighters are fitted with a gadget which always keeps something "on the clock."

The new Sperry Gyro-Horizon, Mark 3, now fitted to the latest R.A.F. jets, is driven by electricity and the gyro so mounted that a pilot can roll through 360 degrees or dive or pull up almost vertically, without upsetting the gyro. If, by some extraordinary manœuvre, the pilot does succeed in toppling it, it can be corrected instantly by pressing a button.

AB INITIO

(*Continued from page 361*)

the outlines of the proposed solutions, the lesser intelligences would work out details, and the average men, under the direction of the more gifted comrades, would be used as guinea pigs in experiments to try out the many ideas which should emanate from such a set-up. The solutions to the problems set would be presented finally, not merely as bright but raw ideas, but as proposals backed up by the result of careful experiment—all arising from *ab initio* thinking. Youth would have had the opportunity of applying its unique combination of intelligence and inexperience to practical problems, without an accompanying risk of chaos in organization, and those in authority would be presented with some fundamentally new proposals, well developed and tried out and demonstrably workable.

APOLOGY

No attempt will be made here to elaborate this dream, as it is too far-fetched to stand a chance of serious consideration and it is most unlikely ever to be translated into fact. Readers might, then, feel aggrieved at being invited to plough through such fanciful nonsense. On the other hand, the writer feels that the thesis which has led him to this dream is fundamentally sound and might bear examination. The judgment lies with the Editor. If he publishes this article it might be presumed to "stimulate healthy discussion of Air Force problems which may ultimately result in improvement of our national security," to quote himself. If not, something else more worth while will doubtless appear.

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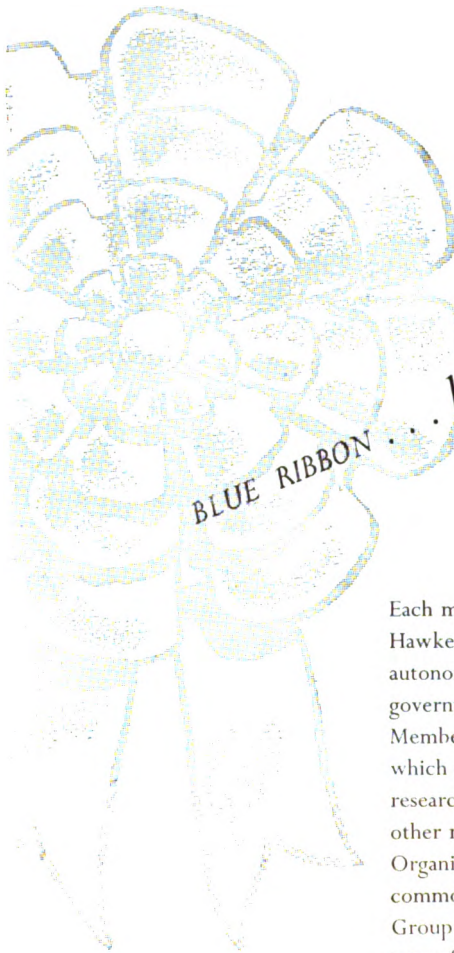

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BOOK REVIEWS

Development of the Guided Missile. By Kenneth W. Gatland. (Iliffe; 10s. 6d.)

Eight years ago Nazi Germany introduced the era of so-called push-button warfare by firing the first V1 flying bombs and V2 rockets against London. They were the first results of a vast programme of research intended to produce within two years a 7,970-m.p.h. winged rocket with sufficient range to bombard New York, and, within ten years, a 100-tons-thrust rocket motor for the 13,000-m.p.h. Sanger Antipodel Bomber project.

German scientists also produced the R4M air-to-air rocket, with which on one occasion six Me. 262 jet fighters attacked a formation of U.S. Fortresses, destroying fourteen of the bombers without loss to themselves. Under development were the Natter vertically launched rocket-powered, rocket-armed fighter and ground-launched guided missiles of frightening potential. Fortunately, the war ended before they were perfected, and Britain, the United States and Russia acquired, as victors, the theoretical and practical results of years of fantastically advanced research.

What use have they made of this windfall?

In Britain, photographs of ground-to-air rockets recently issued to the Press show little or no advance beyond German war-time experiments. America has developed efficient high-altitude research rockets, and both air-to-air and ground-to-air anti-aircraft rockets able to "home" on enemy aircraft with great accuracy; but they are only on the fringe of true "push-button" warfare. Russia remains an enigma, but, as Gatland comments: "It is known that copies of all German design studied fell into Soviet hands; and much of the German research equipment and hundreds of German technicians who had worked on missiles were moved to Russia. It would therefore be unwise to discount any one of these projects. Where development work is fed by huge sums and is given high priority in skilled manpower, and labour is so cheap that thousands of workers can be thrown in to build vast research establishments, test ranges and factories, the time normally reckoned (by our own standards) to produce these revolutionary weapons might easily be halved.

"Of the scant knowledge we possess of Soviet rocket development, reports reaching the Western authorities from Eastern Germany indicate that the war-time rocket research station at Peenemunde has been rebuilt by the Russians and is again in operation as an experimental centre, with winged V2's and anti-aircraft missiles of the Wasserfall type in evidence. There are reports that a long-range testing site for rockets has been established in Poland."

By gathering in one slim volume all available non-technical data concerning guided missiles, research rockets and space satellites, Gatland has produced a book which should be read by every student of air warfare. It is illustrated by a first-class collection of photographs and drawings, and an appendix gives specification data of every known type of powered missile—a total of ninety.

J. W. R. T.

Faith is a Windsock. By Miles Tripp. (Peter Davies; 12s. 6d.)

During the past year there has been a spate of new novels centred around war-time bomber operations. Without exception, they have combined terrifying, sometimes crude, realism with too-highly descriptive romance. Yet one or two of them are undoubtedly great novels. *Faith is a Windsock* is, perhaps, the best of all; beautifully written, with characters who are never larger than life, but who had their prototypes in every squadron of Bomber Command in those grim years.

Miles Tripp could have produced such a book only by intimate personal experience; and the last, moving chapter, only eleven lines in length and obviously not fiction, bears out this belief. Every detail of the novel rings true, from such trivial scenes as the cold airman who "reluctantly shed his greatcoat and started disinterestedly chopping up a wooden shelf" to light a fire, to this account of a typical bombing raid: "Saarbrucken was asleep, lying snug as a cat curled in the sun. Then havoc tore it apart. The city lay paralysed, waves of shock shimmered up like a heat-haze as explosion followed explosion. Balls of oily smoke rolled upwards as the bombers flew away." Ex-aircrew readers in particular will appreciate the tension of subsequent baulked landings in low visibility, with a dead engine, at a diversion field in Cornwall.

It is easy to criticize the more amorous interludes in the book; but how many bomber aircrew lived only for flying? How many more needed some other interest to help them forget flying for a few hours between operations? Those "other interests," whatever they

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were, helped them to be heroes, for "All men who trod the sky's uncharted ways knew fear and faith; the fear was common to all, the faith was more personal. It could be a woman's prayer, or a horoscope, as easily as a silk stocking, or God." Faith is, in fact, like a windsock. You only notice it in bad weather, yet it's there on the quietest day, ready for sudden storm.

J. W. R. T.

The Stories of Flying Officer "X." By H. E. Bates. (Jonathan Cape; 10s. 6d.)

When we first read during the war a collection of short stories of the Royal Air Force, under the title, *The Greatest People in the World*, their author was identified only as Flying Officer "X." We often wondered who he was; for nobody else had been able to combine such intimate knowledge of the war-time Service with writing ability that conveyed in a few simple words all the tragedy, humour, humanity and inhumanity of war. Had we then learned to search out and admire the stories of H. E. Bates, we should not have wondered for long.

Now *The Greatest People in the World* has been blended with *How Sleep the Brave* and three new stories by Bates in this one volume, and the result is the finest possible tribute to the aircrews and groundcrews of the Royal Air Force, and to all who watched and waited for them for five and a half years. That, perhaps, is the true greatness of Bates's style: his characters are all one people, fighting the same enemies, physical and psychological, instead of being airmen and civilians, unable to speak the same language or feel the same hopes and fears. He uses Service slang only where its meaning will be clear to every reader, and his book reflects the down-to-earth realities of Service life without ever getting sordid.

His stories are moving because their characters are familiar to us all, from the little Texan ex-sheriff air-gunner fighting a personal war, to the frail grey mother whose son has been taken from her, unforgivably, by an impersonal air force, and the kindly publican who knew them all. Above all, it glorifies not war but those great people who gave their all in an effort to find peace.

J. W. R. T.

The Soviet Air Force. By Asher Lee. (Gerald Duckworth; 10s. 6d.)

This is not a new book, but a revised version of Asher Lee's earlier work with the same title. Various minor amendments and additions have been incorporated, and the last chapter has been completely re-written.

It is in this last chapter that the chief interest for the contemporary reader lies. It is entitled "The Post-War Decade," and in about fifty pages presents an illuminating and comprehensive summary of the means by which Russia has so alarmingly progressed in that period from a technically backward aeronautical nation to a leader in the world of aviation, at any rate, on the military side.

It is clear from this story how much Russia owes to other nations in the great strides she has made; to Germany, whose technical and research manpower has been creamed by the Russian industry and apparently put to excellent use; to America, whose war-time lease-lend equipment and force-landed Superfortresses have contributed so much to Russia's present bomber strength; and to Great Britain, whose economic necessity drove her to the fantastic lengths of selling to her potential enemy the jet engines on which Russia's development and production programmes are largely based.

Nevertheless the author has not fallen into the common error of underestimating our potential opponents and attributing all their advances to outside assistance. The Second World War pointed the danger of such underestimation (the German's "cardboard" tanks and the Japanese "paper" aeroplanes); we are reminded here of the very real and valuable qualities possessed by the contemporary Russian. He is quick to learn, industrious, enthusiastic, and prepared to put up with living conditions and hardships that his Western brother could not, or would not, tolerate. It is high time that we abandoned the conception of him as the ignorant peasant and the backward, semi-Oriental moujik, and realized that in the Russian of today, be he aircrew or technician, we have a very considerable rival, either in the economic or military field.

Some errors survive from the first edition of the book, including inaccuracies of aircraft classification and indexing. There are also some defects of style, notably repetition; we are told no fewer than three times that the designer, Petlyakov, was killed in an air crash in 1944, and such mannerisms as beginning a sentence "True it is that . . ." are repeated as often as three times in two pages.

On the whole, however, this is a valuable book, particularly for those to whom up-to-date intelligence information is not available through Service sources. Much of its earlier

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1952

Avro Delta Aircraft

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English Electric Canberra

Fairey Firefly

Gloster Meteor

Hawker Hunter

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chapters is no longer of any but historical interest, but a reader seeking a general picture of the history, development and future prospects of Soviet air power can obtain from it a good grounding for his studies.

C. N. F-N.

Khaki and Blue. By Colonel Ronald Sherbrooke-Walker, T.D., D.L. (St. Catherine Press Ltd., London, June, 1952, 135 pp., illustrated; 10s. 6d. net.)

It is not easy to review this book because it is not easy to see why it was written. From the publisher's "note" which states that the book "vividly recounts the birth, struggles, adolescence and maturity of that remarkable war baby, the Royal Air Force Regiment," it might be thought that the author had set out to give a brief historical account of the formation and early days of the Regiment. He himself, however, disavows any suggestion that he is attempting an accurate or comprehensive history, and indeed omits altogether any account of the high-level discussions of such a novel project and the policy decisions that resulted in its formation and its final shape. He confines himself almost entirely to the story of his personal and individual experiences in the ground defence side of the Royal Air Force, so it would not be fair to him to criticize his book as failing to give a satisfactory over-all picture of the Regiment in its early days.

That being so, it is still not easy to see why the book came to be written, for it must be conceded that a study of it shows the author's war-time career was one of unusual tedium and lack of interest and excitement. A series of postings in such outposts of Empire as Gosport, Sunningdale and the Air Ministry provide little material for a first-hand account of the activities of a formation such as the R.A.F. Regiment: the only break in such service came in a brief spell in West Africa, spent in necessary but routine tasks of re-organization. The author himself clearly feels this deficiency for he has illustrated his book with borrowed photographs of various units of the Regiment on active service in Europe and the Near East, but, as he himself admits, these bear little relation to the text.

No one will censure in a story-teller a lack of first-hand experience if in writing he can replace it with a convincing account of the experiences of others or of matters of momentous and general interest. The author's story, however, remains largely auto-biographical, and from it we can glean these general facts: he saw service with the R.F.C. until 1916, when he was taken prisoner; he was demobbed in 1919; and thereafter by his own account "had little or no contact with the R.A.F. until the Second World War." Rejoining as an Army officer, he was seconded to the R.A.F. for ground defence duties and remained in that service in one or other capacity until the end of the war.

In those circumstances it is somewhat surprising to find that his first chapter, consisting very largely of criticism of the R.A.F. written from a strictly Army viewpoint, he faults those aspects in the R.A.F. which always seem to jar most on the military mind, though he hastily denies any intention of aggravating inter-Service feeling. Much of the criticism here, however, seems to have an Army bias: there may, unfortunately, be justification for much of it, but on occasion it seems somewhat one-sided.

We are told that the R.A.F. uniform was lamentably unsuitable for active ground duties; it was "apparently based on the assumption that officers were either in the air, in their offices or in the mess"—a very reasonable assumption it would seem. Large moustaches as sometimes worn in the R.A.F. should, it appears, "be forcibly removed by one's fellow-subalterns"; this scarcely seems a universal rule even in the Army. The R.A.F. practice of promoting young aircrew to senior N.C.O. rank is devised probably with justification (though what was the alternative?); quite without justification, however, the other Services are held up as sinless in this matter. It is a pity to have to indulge in inter-Service controversy, but in this case anyone who has encountered the war-time, and, indeed, National Service sergeants of the Army Educational Corps, Pay Corps and so forth must at least admit that the system of over-promotion was universal. "A sergeant should be a sergeant," says our author; R.A.F. sergeants were perhaps beardless; they were certainly not unblooded.

One final criticism offered (and there are too many to catalogue in detail) must be firmly and forcibly rebutted. I quote from page 6: ". . . they (war-time R.A.F. officers) seem to regard themselves as first-class passengers on a ship, looking down from the seclusion of the boat deck! on the third-class living their separate lives below." Without any Service prejudice and, it is hoped, without heat, let it be made quite clear that if there were any passengers on "the ship" at the time they were not R.A.F. officers.

Criticism, as such, should never be resented, and as a Service we can afford to accept it, and hope to benefit from it: nevertheless, we should also be quick to refute it where it does not do us full justice.

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The solution to this somewhat unusual approach to a sister Service lies in the type of R.A.F. unit to which the author found himself mostly attached. His constant reference to the luxurious nature of R.A.F. messes and mess life, and his note on one occasion that he, in khaki, was the only officer present with wings, shows that his lot was cast in places which, if not necessarily strange, were certainly not typical of the war-time R.A.F.

In his defence it should be added that the author himself seemed concerned to find so much of his material and opinion of a critical nature and firmly protests his real admiration of, and respect for, the R.A.F. His criticism is certainly never malicious, but he is unfortunately the victim of his own deep-seated opinions, not to say prejudices—a very old and hoary friend peers momentarily from the jungle on page 124: ". . . what if the Army had once again formed its own flying corps, as a branch of the Army." What indeed?

In the last chapter the author appears to realize that his outlook may have been narrow and his approach purely personal, and sets out "to give a more connected and summarized account of the birth, early life and maturity of the Regiment." In this chapter will be found most of the meat of the book, and it is tantalizing to realize from it how interesting the whole story could have been made if told along these lines.

There is still a good book to be written about the early days of the R.A.F. Regiment. Unfortunately *Khaki and Blue* does not quite fill the bill.

C. N. F-N.

The Crowded Hours. By Anthony Richardson (author of "Wingless Victory"). (Max Parrish, London, October, 1952, 248 pp.; 15s. 6d. net.)

A synopsis of the life story of Wing Commander Lionel "SOS" Cohen, D.S.O., M.C., D.F.C., who fought in four wars, culminating in his final award of the D.F.C. at the age of 69 after 70 air operations as a member of an aircrew in Bomber Command, as well as the Air Medal, which was awarded to him by the President of the United States.

It is the life story of a very remarkable man, with particularly vivid interest to members of the Air Force, from the day in 1939 when he became what might well be described as a very ancient pilot officer, taking his place in that band of young comrades in aircrew of Bomber Command, playing his part gallantly with the rest of them, gaining their affection and admiration. Because of this, his earlier experiences from the "Bow and Arrow Age" will be read with greater interest than that which is usually accorded to reminiscences of older warriors by the younger generation. "One crowded hour of glorious life is worth an age without a name."

A. H. S.

Night Be My Witness. By Walter Clapham (formerly an N.C.O. bomb-aimer in Bomber Command). Jonathan Cape, London, 20th June, 1952, 285 pp.; 12s. 6d.)

In particular it is the story of three youngsters who, after a period in the Army on light ack-ack duties and a baptism of bombing at the receiving end from the Germans, volunteered for aircrew duties in the R.A.F. Told by one of them who, having failed in his ambition to become a pilot, became a bomb-aimer and, to some extent, this influences his story, making him take rather a "worm's-eye view" of his own achievements as a member of an aircrew. It tends to spoil a good story well written. The stark realities of the life of aircrew both on the ground and in the air are recounted, the anxieties, the hardships and the constant nerve tension of those who never know whether each operational sortie might be their last are graphically described by the author.

The story of all three ranges over half the world—Florida, Canada, North Africa—before it returns to Britain and their experiences in a Pathfinder squadron. The experiences of "Johnny Somers" and his friends and of the effect of the war on their love affairs, will find an echo in the minds of many of Bomber Command's aircrew of the Second World War. They will enjoy this book.

A. H. S.

NEW BOOKS

AERONAUTICS

Air Navigation: Theory and Practice. By E. Brook Williams and W. J. V. Branch. (Sir Isaac Pitman & Sons Ltd., London, 24th June, 1952, 635 pp.) Fully illustrated with diagrams.

This book covers a fairly wide and advanced field of the practice of air navigation. A

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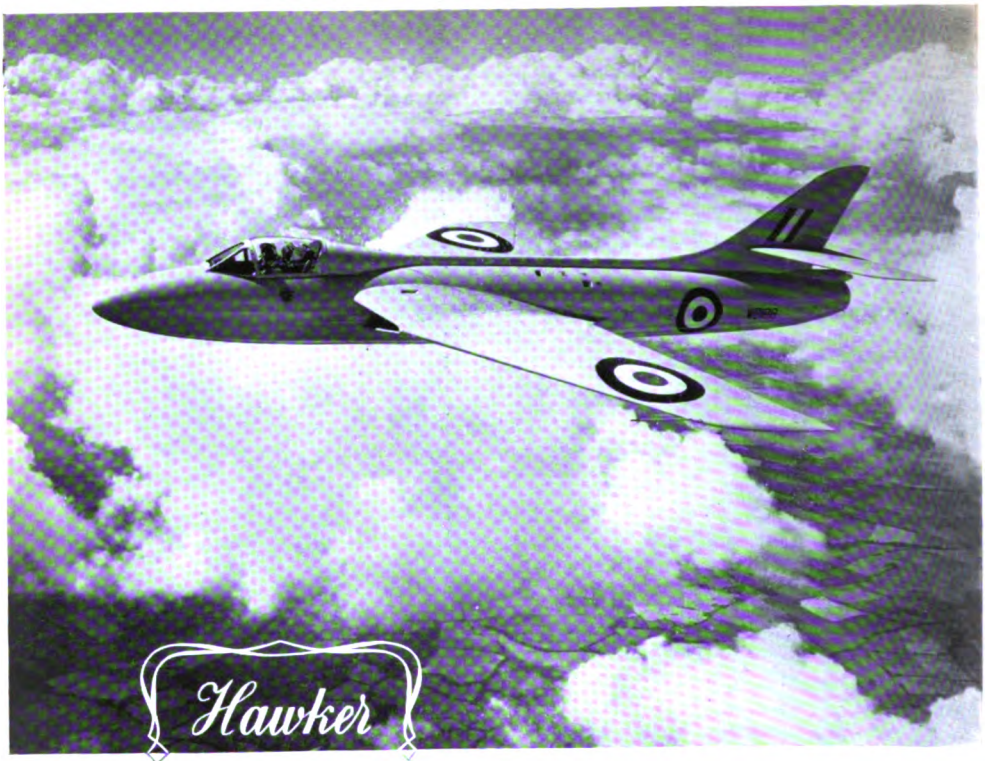

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text-book of general value, but also of valuable assistance to those who are preparing, on their own initiative, for some particular licence or rating, prior to attending a training centre.

High-Speed Aerodynamics. By W. F. Hilton. (Longmans, Green & Co., London, New York, Toronto, 23rd June, 1952, 596 pp.; 60s.) Fully illustrated with diagrams.

Dr. Hilton's new book is a comprehensive and up-to-date treatment of the principles of high-speed flight and of the design and construction of subsonic and supersonic aircraft and rockets.

BIOGRAPHY

Eisenhower: The Man and the Symbol. By John Gunther. (Hamish Hamilton, London, 1952; 10s. 6d.)

Portrait of an Admiral (the life and papers of Sir Herbert Richmond). By A. J. Marder (Professor of Naval History in the University of Hawaii). (Jonathan Cape, London, 1952; 30s.)

John Baird: The Pioneer of Television. By S. Moseley. (Odhams Press, London, 1952; 16s.)

The Marshall Story. By R. Payne. (Prentice Hall, New York, 1952.) (A biography of General George C. Marshall.)

ATOMIC ENERGY

Applied Atomic Energy. By K. Fearnside, E. W. Jones and E. N. Shaw. (Temple Press, London, 1951; 9s. 6d.)

ENGINEERING (Electrical)

Broadcasting and Television Since 1900. By Maurice Gorham. (Dakers, London, 1952; 18s.)

POLITICAL AND SOCIAL

The World in March, 1939. A. Toynbee and F. T. Ashton-Gwatkin (Editors). (Oxford University Press (for R.I.I.A.), 1952; 45s.)

The publication of the pre-war series of the Annual Survey of International Affairs was resumed in 1951 with the publication of a second volume for 1938 dealing with "The Crisis over Czechoslovakia (January to September, 1938)." This further volume, "The World in March, 1939," is intended as a prologue to the Survey for 1939-1946, which will be published later.

The Development of Socialism. By G. D. H. Cole. (Athlone Press, London, 1952; 2s. 6d.) The Webb Memorial Lecture, University of London, 1951.

Unconditional Surrender: The Roots of World War III. By F. O. Miksche. (With a Bibliography.) (Faber, London, 1952; 25s.)

Politics Among Nations: The Struggle for Power and Peace. By H. J. Morganthau. (Knupf, New York, 1951.) (Deals *inter alia* with such topics as the struggle for power; national power; international law; total war; disarmament; security; international government; the world state; diplomacy.)

Contemporary Problems. By P. Rogers. (University Tutorial Press, London, 1952; 6s.)

Policy for the West. By Barbara Ward. (Penguin Books, Harmondsworth, Middlesex, 1951; 1s. 6d.) (A constructive analysis of the Communist challenge and a way to meet it.)

MILITARY

The Happy Hunted. By Brigadier G. Clifton. (Cassell, London, 1952; 21s.) (A New Zealander at war in the Mediterranean and Middle East.)

The Struggle for Europe. By Chester Wilmot. (Collins, London, 1952; 25s.)

Our Men in Korea. By Eric Linklater. (H.M.S.O., London, 1952; 2s. 6d.) (The Commonwealth part in the campaign. The first official account.)

A History of United States Naval Operations in World War II. Vol. III. (Aleutians, Gilberts and Marshalls, June, 1942, to April, 1944). By S. E. Morison. (Oxford University Press, 1952; 42s.)

Consultation and Co-operation in the Commonwealth. By H. J. Harvey. (Oxford University Press, 1952; 30s.) (Part II deals with Defence.)

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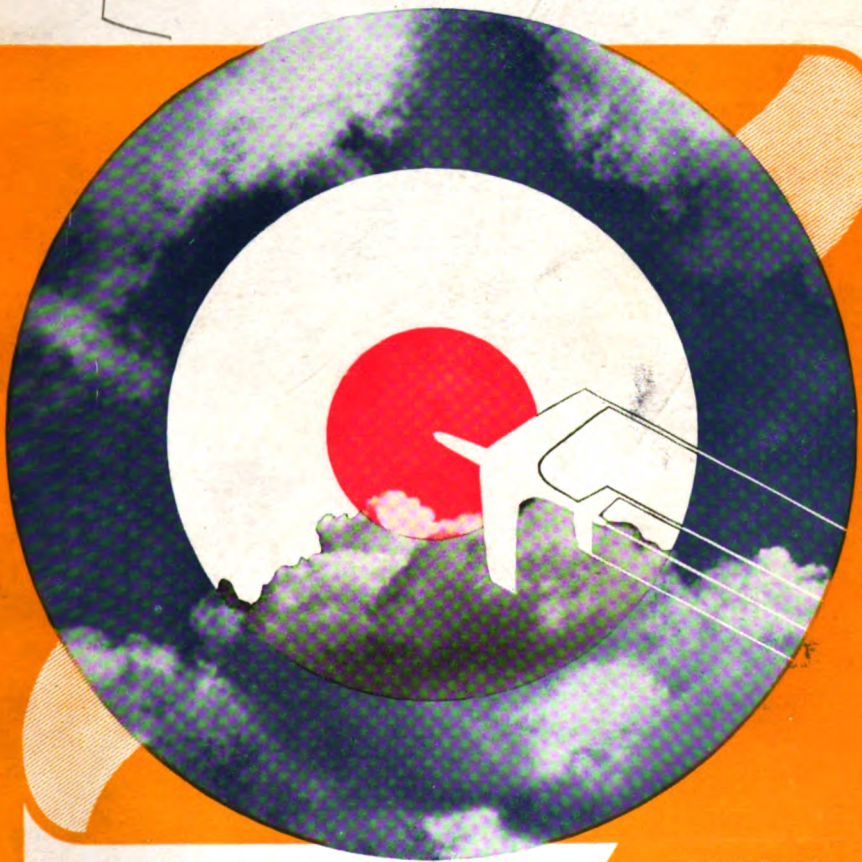

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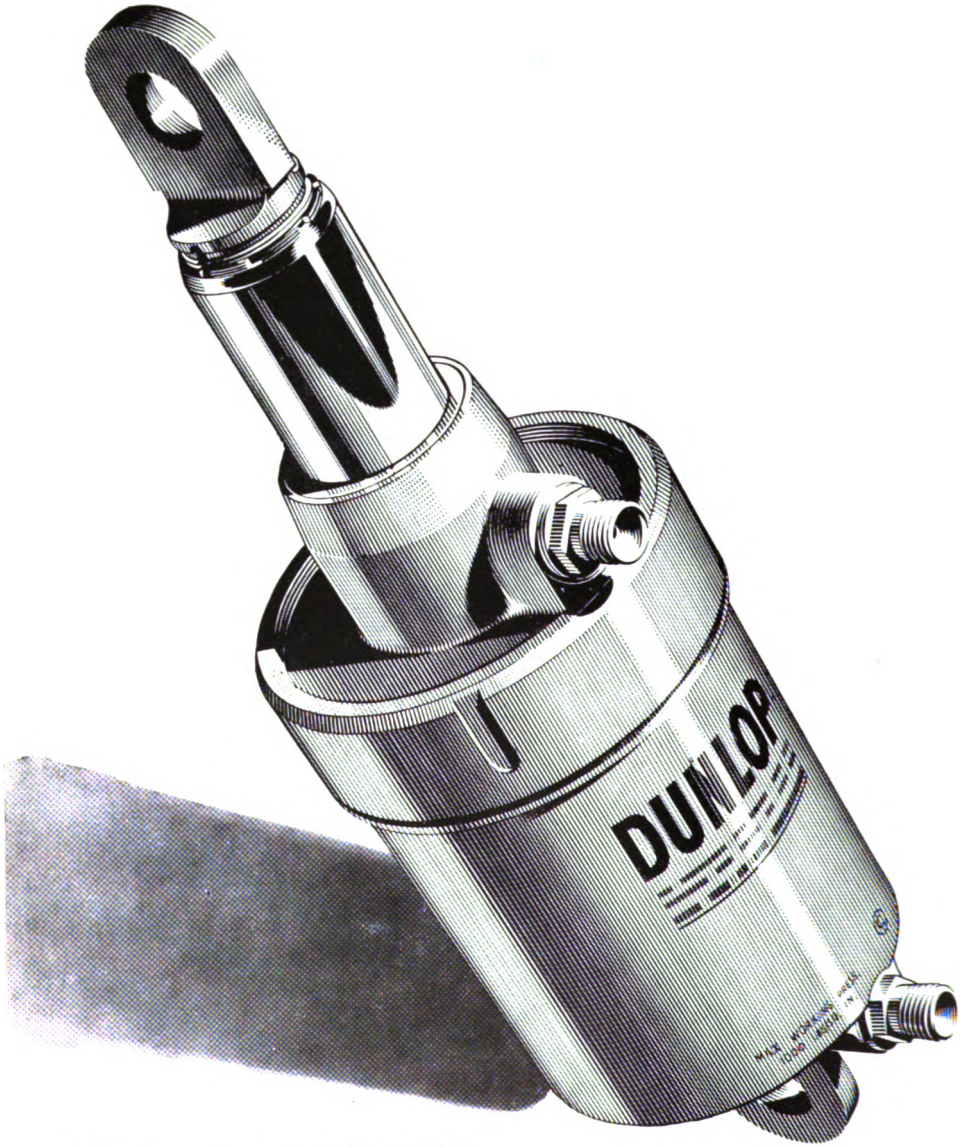

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THE R. A. F. QUARTERLY
AND COMMONWEALTH AIR FORCES
JOURNAL

EDITOR
GROUP CAPTAIN A. H. STRADLING, O.B.E., R.A.F. (RET.)
Assisted by an Air Ministry Advisory Committee of members of the Royal Air Force and Air Forces of the Commonwealth

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EDITOR.

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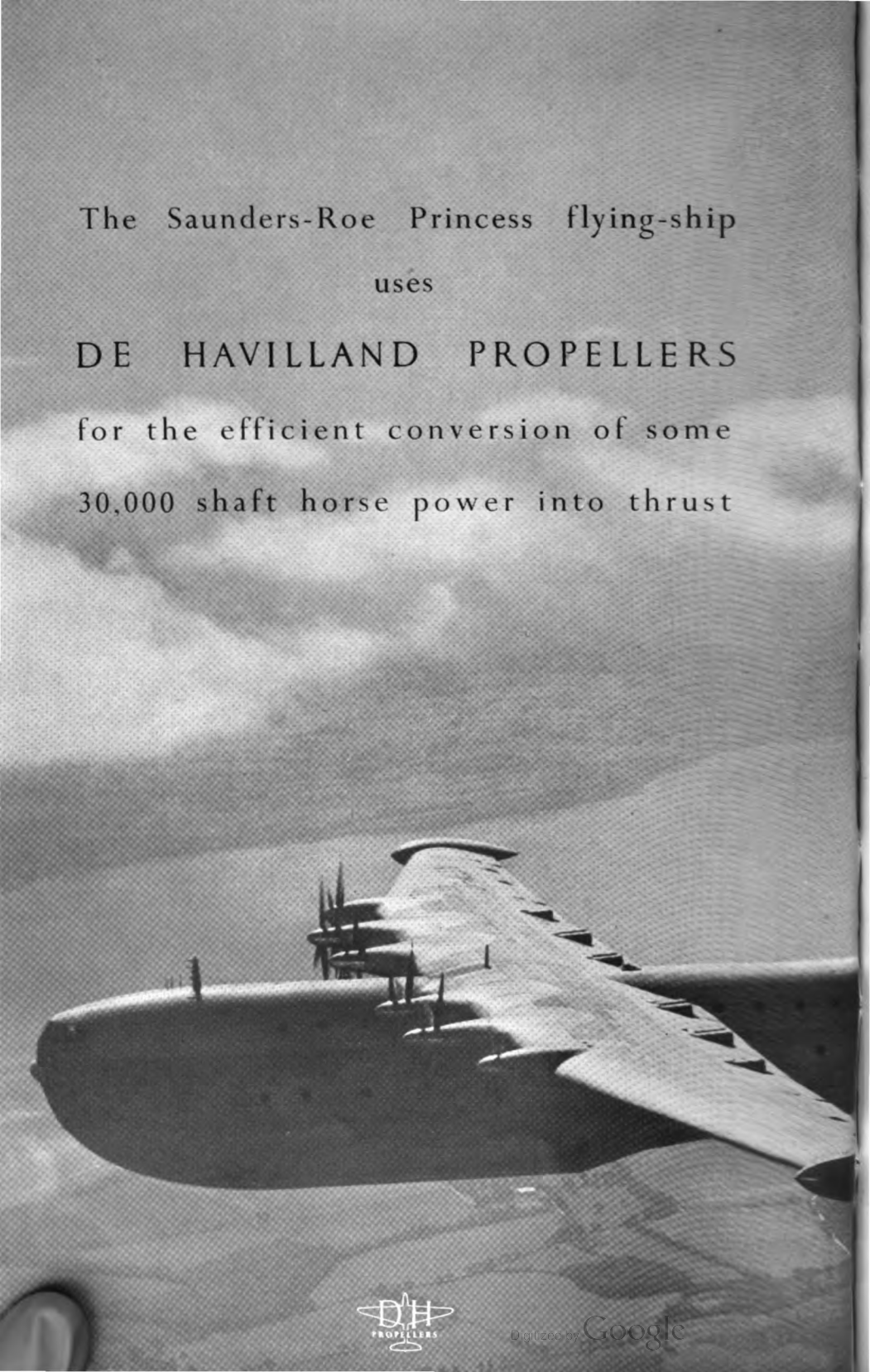

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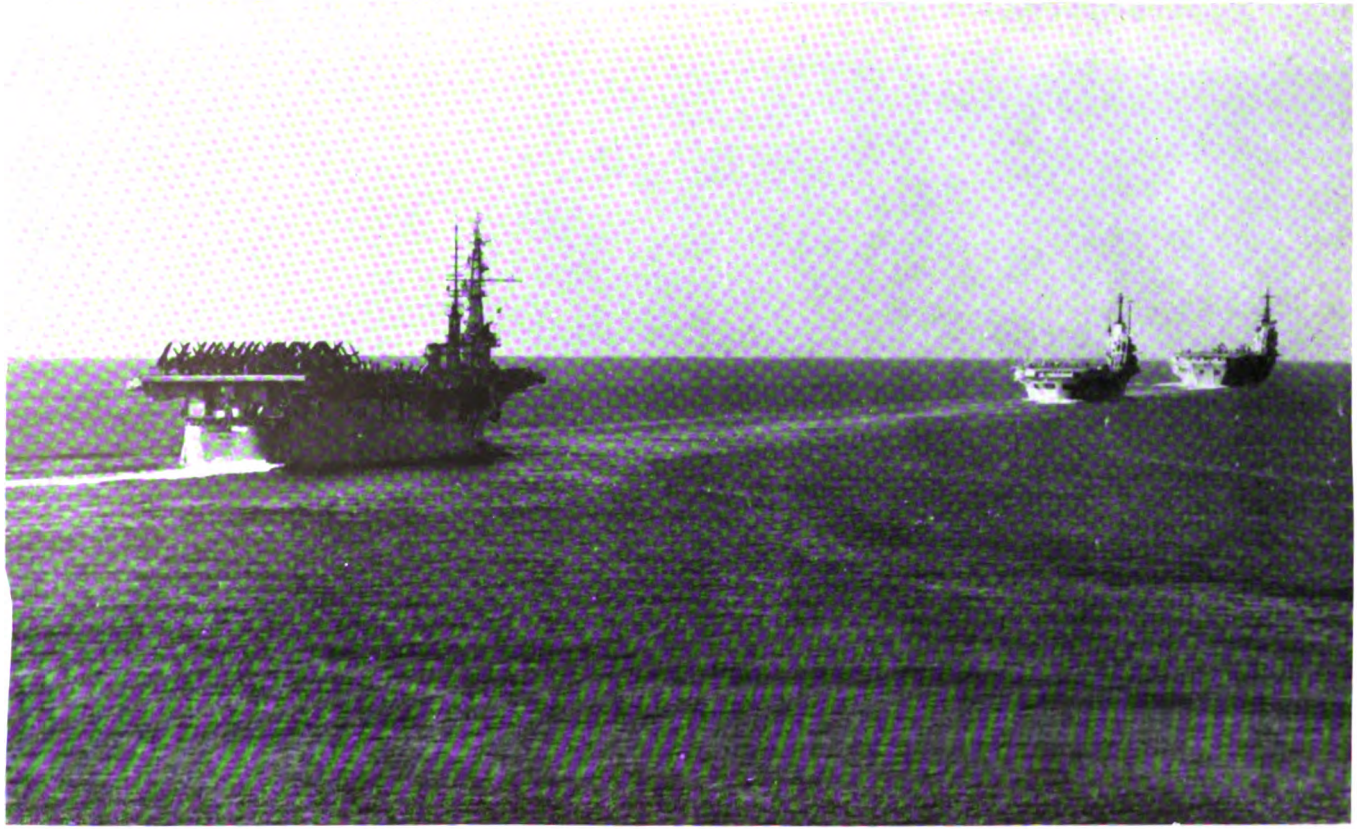

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EXERCISE "MAIN BRACE" (*see page* 33)

Three Aircraft Carriers steaming in line ahead in the North Sea—U.S.S. "Wright" (nearest the camera), H.M.S. "Illustrious" and H.M.S. "Eagle"

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EDITORIAL

A NEW YEAR RESOLUTION—A TWO-PRONGED DEFENCE

THE military strength of Russia has been given as one hundred and seventy-five divisions, representing 2,800,000 men under arms, one-third of these mechanized. On mobilization it is considered that this number could be doubled. It is further estimated that Russia has about 25,000 tanks, 20,000 aircraft and 350 submarines. In addition, she is rapidly rearming her satellites Poland, Czechoslovakia, Rumania, Bulgaria and Hungary.

When estimating the combined forces of the Western Powers the disparity is considerable, except in naval strength, which, while essential for our own particular problem of keeping our vital sea routes open for supplies, in no way compensates for the overwhelming preponderance of Russia's land and air strength.

Why, in peace time, does the U.S.S.R. maintain these unnecessarily large military forces ?

Not for the defence of her country. There is not a nation in the world who would be foolish enough to try to invade Russia. History has given to the world examples of the folly of such attempts in the failures of Napoleon and Hitler, and it is certain that there is no nation today which has the slightest desire or possesses the means for such a conquest.

To find the answer we must examine the idea that dominates the rulers and people of Russia; the idea that determines everything they think, say and do; the idea which controls every phase of their national life. Such investigation would lead us to the conclusion that they are determined to change the world by every means available, economic, political, psychological; by peaceful means if possible but by force if necessary.

This, then, is the purpose of the huge Russian military forces in being in peace time: to change the world, to change the way of life of peoples of other countries not yet under their domination and to impose upon them the Communist ideology, by propaganda backed by the threat of force.

How are these other countries facing up to this threat? In what manner are they resisting this attack, not to come at some future date, but an attack fully launched with visible signs of gaining ground in every part of the world?

Why! in the good old traditional way, by forming a defensive alliance and arming as speedily as possible.

But we are only preparing to defend ourselves at some future date should Russia launch her military might against us. We are only preparing for a possible "hot war." This might have been satisfactory a decade ago, but quite inadequate action to cope with the dangers of today.

Russia has two weapons. Her "cold war," by insidious and underground methods, has been advancing in our rear and making inroads into our defences as effectively as any frontal military assault, which would only be launched if and when our defences were sufficiently weakened.

It is time that we copied a certain famous British regiment and qualified for cap-badges "fore and aft" by turning our rear rank "about face" and defending our rear, as well as consolidating our front rank ready to resist a threatened frontal attack.

The salesmanship of the Communist ideology in the world is more likely to bring us to defeat today than the "hot war" with which we are threatened, because we have considerably improved our armaments to meet this but little if anything to defeat the real threat.

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When are we going to realize that it is vital to put the same thought and energy into fighting this crumbling of our will to resist as we are doing in military rearmaments?

What finer New Year resolution could we make than to resolve to organize and develop with all speed the essential second prong to our defence before it is too late ?

Are we bereft of plans to counter the spreading of this cancer in our midst?

The British are shy and timid when it comes to talking about ideologies: we pay certain half-hearted lip-service but entirely lack the passionate and almost fanatical enthusiasm of those who are selling the Communist ideology to the world.

It is a thing of no great difficulty to criticize—nay, it is a very easy matter to point out what has not been done—but to produce a plan of what should be done is a work extremely troublesome.

But not having spared our authorities from criticism we will do our best to suggest some form of action.

Overcoming any national characteristics of bashfulness or timidity, the general public should be informed that, despite our previous silence on the matter, the democracies have a better ideology than Communism to offer. We are apt to take it too much for granted that the value of this is known to all concerned. This is far from the truth. How do we set about this difficult task?

We should enlist the enthusiastic, whole-hearted, voluntary support of the most powerful propaganda weapon in this land, the nation's Press. They alone can effectively rouse the interest of every loyal citizen and the masses which are the backbone of this country by decrying the Communist ideology for the spurious article that it is: making man a chattel of the State, robbing him of freedom of thought, speech and action, with its imprisonment without trial, its forced labour and concentration camps, and denying him the right to his beliefs temporal or moral. (We do not underestimate the difficulty of obtaining this unified help in a materialistic world.)

It is not enough to confine our activities to these small islands. We must convince all peoples not yet dominated by Russia of the fallacies of Communism, and of the hope of a fuller life that lies in the ideology of the democracies.

THE PROBLEM AS IT AFFECTS THE SERVICES

In a Service journal it would be appropriate to indicate where the Navy, Army and Air Force can play their part in defending themselves from this attack in the rear from *franc tireurs*. Our armed forces are the ambassadors of the democracies among the people of the nations where they are serving. By their conduct they interpret democracy to those people, and if they give an adequate demonstration of the democratic way of life there is no doubt that this idea will capture the hearts and minds of the people among whom our forces are serving.

To achieve this it is essential that we take as much trouble to train officers and men as ambassadors of our way of life as do the Russians to train theirs as ambassadors of Communism. Clearly our representatives in countries outside the Iron Curtain would outnumber our rivals and the advantage would be ours.

Such instruction should take its place as an *essential* in every college, school and unit's training programme and, with the proper value placed upon it by Authority, raise it from the present level of one of the non-essentials detracting from military training to its high priority in our preparations for today's battle.

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important as their ability to fly an aeroplane or operate a tank in action in a possible future war. It is equally important that they possess full knowledge of every argument for the continuance of our chosen way of life and the details of the ideology of the democracies. It is for these things that they will fight and for the defence of the right to be allowed to continue this way of life that they may be called upon to lay down their lives.

By efficiently organizing this second prong of our defence and backing it with adequate armed forces, the need for that greatest sacrifice, the laying down of life for one's beliefs, might yet be avoided.

We are proud of our heritage. This country in the past has led the world on many occasions, and Britain can yet prove that she is not degenerate by doing so again, but so important a national movement could only succeed if organized at the highest possible level.

NEW YEAR REVIEW—THE WORLD SITUATION

IT is a good old British custom at the close of the old and the beginning of the new year to review the past and make good resolutions for the future.

In 1952 there has been little change in the military situation in any part of the world.

The fighting in Korea has arrived at a stalemate, with seemingly interminable discussions directed towards terms for an armistice. Russia seems still determined to continue the struggle there to the last drop of blood of the North Koreans and Chinese.

In Indo-China and Malaya she continues similar strategy, where Communist-supported guerrillas carry on the attempt to absorb that part of the world under Moscow domination without the loss of a single Russian soldier.

Their plans in all these areas have only succeeded to the extent that warlike operations still continue, but there are signs that they are losing ground. Despite the increased military pressure that we witnessed in October, both in Korea and Indo-China, these offensives which a year ago might have caused us serious reverses have now been held and in places the Communists have been hurled back and lost ground regained. Such efforts are costly in lives and material on both sides, but the major losses have fallen upon the Communist forces.

In the Middle East, where we are now paying the penalty for earlier vacillation and weakness of action, there is little change in the military situation. With Farouk's influence removed, Egypt under General Neguib may not be so extremist and possibly in time even arrive at a mutual agreement which may safeguard the Suez Canal area. In the meantime we continue to keep defence forces there.

Communist strategy is showing some success in Persia, as in her perilous state of almost national bankruptcy she is ripe for absorption into the Communist-controlled states. The disadvantage of this to the Western Powers is obvious and no doubt every effort will be made to prevent it.

In October, 1952, the threat to law and order fomented in Kenya looked extremely dangerous. It was with relief that we heard of the swift and strong action by our Government to deal with the crisis, and what might have been an ugly situation was taken firmly in hand.

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In Europe the progress made in the building up of unified ground forces has been lamentably slow. The strength of Communist sympathizers there still constitutes a grave danger. Old fears and hates make the formation of the essential combined military forces a most difficult matter. Progress there certainly has been, but in the urgency of the situation it is regrettably slow.

By combined "exercises" the defensive potentialities of the Western Powers have steadily improved. To weld a single defensive force out of ten nations is no easy matter, yet the progress made towards this has been encouraging, as has been the improvement in the arms and military equipment of these nations.

The lessening of the gap between the earlier overwhelmingly superior military strength of the Communists and of those hastily arming to defend themselves seems to have influenced the formers' intentions. They may not now feel so confident in the result of an armed attack on the Western Powers. They undoubtedly now rely more upon the first three phases of the New War Strategy, i.e., Propaganda, Diplomacy and Economic Pressure, and may decide to wait until these have adequately prepared the way before entering the last phase, i.e., Military Pressure. When reviewing the situation it is as well to consider how their present strategy is succeeding in our own country. We only need to look back over the past year to realize that they are not only holding their own in this particular phase of warfare but have achieved considerable success. Members of the Communist Party and their fellow-travellers have succeeded time and again in disrupting our industries, laid heavier burdens on our national economy, and slowed up our efforts to defend ourselves and improve the welfare of our people. In 1953 we must resolve to launch an all-out offensive against the "cold war" (the spreading of the Communists' Godless ideology) and, realizing that the U.S.S.R. can at any time launch a devastating "hot war" upon us, modernize and increase our defensive military strength within the maximum of our national economy.

We wish "A HAPPY AND PROSPEROUS NEW YEAR" to all those who have throughout the past by their encouragement and active support made it possible to offer to our subscribers a journal worthy of the R.A.F. and Commonwealth Air Forces. The same wish we send to our subscribers at home and abroad. We hope they will continue to give us their support, and on our part we will endeavour to merit it.

THE EDITOR, 1953.

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ECONOMY IN GROUND ATTACK

By John W. R. Taylor

WHEN the first jet-powered fighter aircraft went into service eight or nine years ago they were greeted as an answer to the prayers of pilots, manufacturers, taxpayers and almost everyone else. In particular, we were informed, cockpits were going to be tidier, with only half as many controls; and a very well-known airline chief remarked that the engines themselves were so simple and easy to build that, in time, nobody would bother to overhaul them every few hundred flying hours. "They will become like safety-razor blades—change them and throw the old ones away."

Unfortunately, things have not worked out that way. A glimpse inside the cockpit of a current jet-fighter will reveal as many knobs, levers, switches and dials as ever; and gas-turbine production engineers would probably explode on the spot if anyone suggested throwing away compressor or turbine blades after a couple of hundred hours' service. Many big axial-flow engines need 1,000 or more of these blades, and they are the industry's worst bottleneck, as each one has to be hand-finished by a craftsman to extremely fine limits.

In other respects, jets have more than proved their worth. There never was any doubt of their superiority as interceptors; but until the fighting started in Korea, there was no proof that they could rival piston-engined fighters for ground attack duties.

Most important of these duties is provision of close support for ground forces, and many experts believed that jets would be incapable of achieving the accuracy and precision essential if casualties to friendly troops were to be avoided. They argued that the pilot of a 600 m.p.h. jet-fighter would have great difficulty in distinguishing between enemy and allied units because they might well be only 100 yards apart and this would represent one-third of a second flying time to the pilot. Furthermore, it was doubted if the jets' fuel-thirsty engines would give them sufficient endurance to search for targets or fly around in a "cab rank" until called in to attack an objective located by controllers in the air or on the ground.

Experience has proved these arguments unduly pessimistic. In Korea, the addition of large external fuel tanks to increase combat range, plus efficient target making by light 'planes and artillery, have helped pilots of Thunderjet, Shooting Star, Sabre and Meteor jet-fighters to score notable successes in ground attack missions, using rockets, bombs, cannon-fire and napalm.

MUST WE USE JET-FIGHTERS?

It is, however, significant that U.S. Marine pilots have achieved equally good results in close support of United Nations ground forces, using much cheaper, supposedly obsolescent Corsair piston-engined fighters, the design of which dates back to 1939. Their previous experience has contributed to this, for many of them are veterans of the Pacific war, including Okinawa, where Marine squadrons delivered a high proportion of the 4,725 tons of bombs, 37,653 rockets and 1,116 tanks of napalm used in three months by Nos. 1 and 2 Land Force Air Support Control Units. But—and this cannot be attributed to experience—on several occasions, elderly U.S.A.F. Harvard trainers, which are used

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[U.S.A.F. Photo

SOMEWHERE OVER NORTH KOREA

Rugged Korean terrain is the favourite playground for U.S. Air Force T-6 "Mosquito" spotter planes of the 6147th Tactical Control Group in mountain hide-outs such as those shown here. T-6 pilots roam low over enemy positions and pick out caves and bunkers harbouring Communist troops, supply caches, and gun emplacements. The "Mosquito" at right is diving for a closer look at something suspicious below

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to observe and mark targets for the fighters in Korea, have been able to place their white phosphorus marker rockets with such accuracy and enthusiasm that the targets required no further attention from the bigger aircraft. As a result, quite a lot of people began to wonder two years ago not if it was *practicable* to use jets for ground support, but if it was *necessary*.

Admittedly, the ability of Corsairs and Harvards and to a lesser extent, jets, to wage continuous, devastating ground attack against the Korean communists must derive in part from United Nations' air supremacy over the battlefield. But enemy ground fire—the main deterrent to efficient close support—has often been intense and accurate, calling for a high degree of bravery and skill from the pilots and ability of the aircraft to absorb heavy damage. Despite this, results have bene outstandingly good, and many stubborn enemy strong-points and guns have been knocked out a mere 100 yards forward of our advancing troops.

Korea has proved again that close air support is one of the finest weapons any modern army can possess, and it is certain that ground forces will demand more and more air cover in the future. Which brings us again to the question of cost, especially in time of limited or "cold" war, when air force appropriations are vitally needed for primary types of interceptor fighters and bombers.

Specific figures are difficult to determine; but it is known that a Sabre fighter, of the type now being used by the U.S.A.F. for ground attack, costs about £120,000, and its pilot represents about £30,000 in training costs. So every time a U.S.A.F. Sabre dives to attack a tank or gun some £150,000 of the taxpayer's money is in the military balance, as well as a young pilot with the highest possible standards of training and physical fitness.

If, as seems probable, the job could be done as well by piston-engined fighters like the Corsair, which cost only some £30,000 to build and can stay over the battle area for several hours if necessary, the use of jets for ground attack can be justified only on grounds of standardization of equipment, training and fuel. On the other hand, the successful tactical use of Harvard trainers in Korea lends support to an alternative that may be more attractive still—the employment of easy-to-build, easy-to-fly, light planes carrying rockets, bombs and napalm.

ADVANTAGES OF LIGHT-WEIGHT TYPES

Such aircraft could be mass-produced from non-priority materials, with standard low-powered engines of the type fitted to private light aircraft, and could be flown in action by any person of average aptitude and physique. No specialized equipment would be needed, beyond a few instruments and simple two-way radio for communication with air and ground controllers; their undercarriages could be fixed, and they would probably cost about £5,000 each.

Nor would an aircraft of this type be so vulnerable as might appear at first sight. It would be small enough to operate from unprepared fields where the enemy would least expect to find a warplane, and could be camouflaged easily. It could make a hedge-hopping approach to its target, below the effective sweep of radar detectors, using every scrap of natural cover, and the tiny engine would give little warning of its approach.

The combination of surprise, extreme manœuvrability and relatively high speed would on most occasions enable it to make its attack and get away before the enemy realized what had hit them. Nor would the danger from enemy fighters be excessive, as any pilot will confirm who has tried to shoot down an observation plane of the Auster or Cub type while it was performing tight vertical banks around a convenient tree! Certainly a light-weight ground attack aircraft of this type would be less vulnerable than a helicopter, and present plans

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[U.S.A.F. Photo

One of the T-6 "Mosquitos" of the Fifth Air Force's 6147th Tactical Control Group awaits the green light from the tower operator at an advanced base in Korea. Each of the planes is assigned to a certain area, and will spend from three to five hours over that particular location. When not directing air strikes by tactical fighter bombers they act as eyes for patrols, convoys and other enemy military movements

[**Photo: Texas Engineering Co. Inc.**

Night photo of Temco T-75, showing static firing test of its two ***.30 guns. They are outside the*** *propeller arc*

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of the U.S. Air Force, Army, Navy and Marine Corps envisage use of thousands of helicopters for front-line duties in the next few years.

This suggestion of light aircraft for ground attack is not merely another bright idea put forward by people lacking experience of modern warfare. U.S. Army units fitted bazooka-type rocket launchers experimentally to the lift struts of several of their tin Sentinal and Grasshopper liaison planes in Italy in 1944, and only removed them to avoid offending the U.S.A.A.F., who had a monopoly in offensive aircraft. Further experiments on the same lines were made post-war at Fort Sill, Oklahoma, but it was not until the first desperate weeks of the Korean war that they assumed any real significance. Then the Army often could not get all the close support it wanted in time to sway the balance of a local action; and several senior officers began to make it clear that they were tired of having to rely on the Air Force. They already had their own observation and liaison planes; now they wanted their own support planes, too, and if the Air Force refused to raise the 2,500-lb. weight limit for army aircraft they would find ways of producing "Battling Bantams" within this restriction—in the interests of friendly unification!

It was no easy job, but—encouraged by reports that the Russians were fitting small-calibre guns and armour to their 110 h.p. MIG-8 Utka tail-first liaison monoplane—two American companies tackled the problem of developing high-performance light-weight ground attack aircraft to meet army requirements.

THE TEMCO BUCKAROO

First of these was the Temco T-35 Buckaroo, which had been planned originally as a new, low cost two-seat basic trainer for the U.S.A.F. Soon after its design was started, an overseas government asked Temco if it could be supplied in an armed version. In view of its small size and the unsatisfactory nature of gun installations in other trainers, Temco were dubious but offered to look into the matter. They soon found that the reason earlier installations were unsatisfactory was that the guns had been fitted as an afterthought in wings that had not been designed to take them. Since the Buckaroo was still in the development stage, Temco were able to design its structure to accommodate one .30-in. machine gun on the torsional axis of each wing, so that the natural vibration frequency of the guns would not be disturbed by wing deflection. At the same time, aluminium casting of large cross-sectional area were provided to eliminate deflection in the mounts, and to distribute recoil loads into the wing structure. The result was a first-class installation, permitting gun removal and replacement in two minutes, and with 500 rounds of ammunition per gun. Provision was made for selective firing, and the installation was completed with a reflector sight and fuselage mounted camera-gun. Ground and air firing tests showed a standard of accuracy comparable with heavy fighter aircraft.

Temco's engineering department had just completed this work when the U.S. Army suggested that it might be quite an idea to add ten 2.75 rockets to the two .30-in. guns, and so convert the Buckaroo into a light-weight ground support aircraft. Despite the fact that it has only a 165 h.p. Franklin engine, Temco fitted the ten rockets and then surprised themselves by discovering that the normal top speed of 156 m.p.h. was only reduced by 5-6 m.p.h., and that take-off, climb and manœuvrability were virtually unaffected.

Big attraction of the Buckaroo is, therefore, its versatility. Basically it is a first-class, cheap, all-metal primary trainer in much the same category as our own Chipmunk. In an emergency it becomes at once a first-line operational type, able to spot and mark targets for high-speed tactical aircraft, attack enemy

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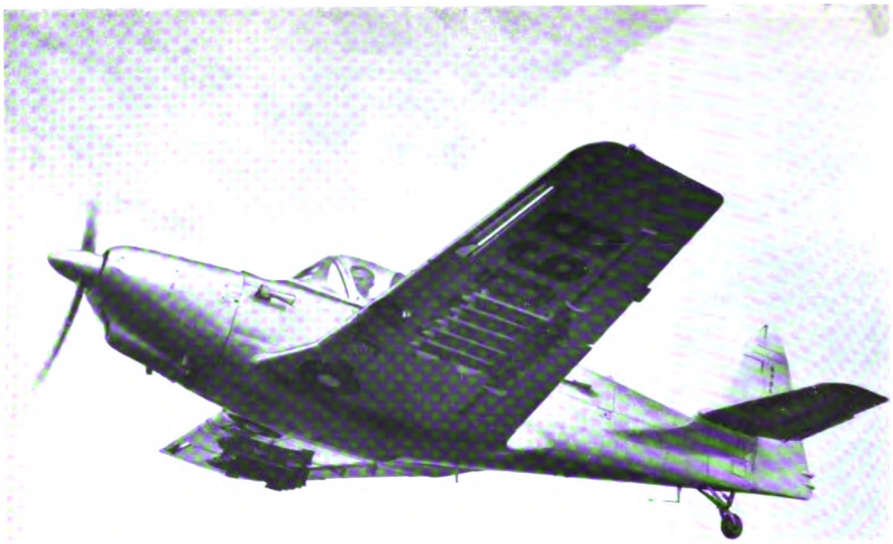
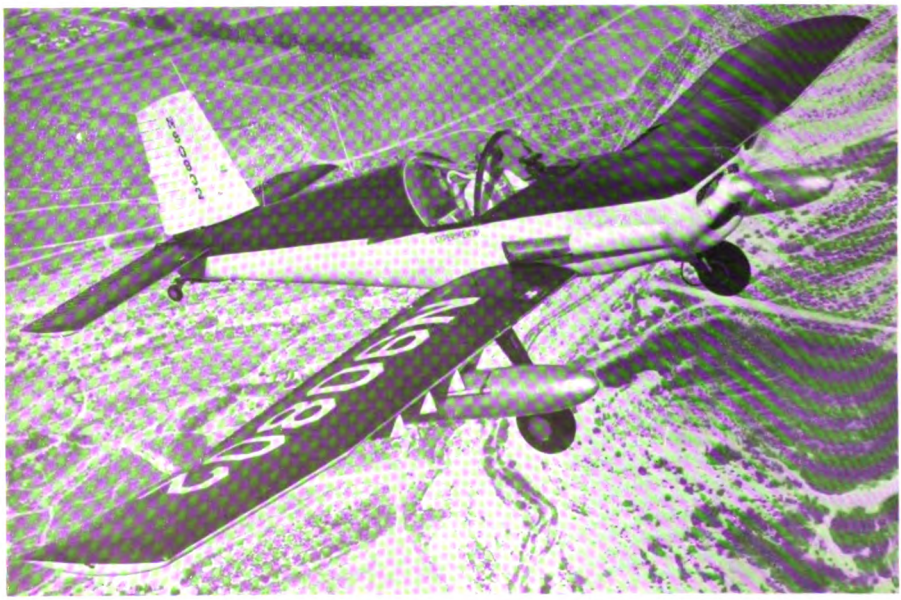


[Photo: Texas Engineering Co. Inc.

Temco T-75 with 10 × 2.75 rockets and 2 × .30 guns



[Photo: Fletcher Aviation Corporation

The Fletcher FD-25 baby bomber

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patrols and upset enemy artillery fire by shooting down their light "spotting" planes—a task which is almost impossible for jet-fighters. Its fine speed range would enable it to search for targets at only 60 m.p.h. and then peel off into a 218 m.p.h. dive to fire its smoke marker rockets. At such a speed, it would present a smaller, more difficult target for ground fire than a World War II Mustang diving at 500 m.p.h.

THE FLETCHER DEFENDER

Second of the American light attack aircraft is the 30-ft. span, single-seat Fletcher FD-25 Defender, which was designed from the start as a highly formidable baby bomber. It is even simpler in construction than the Buckaroo, with a fixed undercarriage and straightforward, sturdy, all-magnesium structure. Its cost is one-twelfth that of a jet-fighter, and it can be flown by any light plane pilot. Yet its 225 h.p. Continental engine gives it a top speed of 187 m.p.h., and enables it to pack sufficient punch to knock out a heavy tank.

The Defender carries two forward firing .30-in. guns, each with 1,000 rounds of ammunition, and 650 lb. of any additional armament, bringing its total weight up to 2,500 lb. Four 5-in. H.V.A.R. rockets or forty 2.75-in. rockets can be used against ground installations, alternating with two 40-gallon napalm tanks, two 250-lb. bombs or ferry tanks to extend its range beyond the normal 630 miles. With a full load, it will take off from roads or fields in 500 ft., and land in 330 ft., and can be kept in the air with a minimum of maintenance.

Nor would its usefulness be restricted to daylight missions. Its makers point out that it is ideal for night strafing, because its minimum speed of only 41 m.p.h. would give the pilot ample time to readjust his eyes to the darkness after being partially blinded by the flash of his rockets.

Fletchers have also produced a two-seat version of the Defender, designated FD-25A, which offers the same versatility as the Buckaroo, by combining the duties of trainer, liaison and close support aircraft. Significantly, the only order for it so far has come from Japan, where the Toyo Aircraft Company of Tokyo will build both FD-25's and FD-25A's under licence. Having been at the receiving end of countless devastating war-time close support attacks in the Pacific, the Japanese know the potential value of the Defender probably better than anyone else, and it is perhaps a little frightening to realize that, armed with napalm, it gives them a more terrible weapon than any they possessed then.

OTHER LIGHT ATTACK TYPES

Only other people who have shown much interest in light aircraft for ground attack are the French, who are developing the twin-boomed "pusher" Potez 75 for this work and have put forward proposals for fitting rockets to various of the Fouga series of baby jet-planes. The latter would seem to offer great possibilities, for both the airframes and the little Turbomeca engines are of simple construction, and they would burn the same fuel as front-line fighters. Chief disadvantage would, of course, be limited range.

Meanwhile, in Britain, the Folland company is building a private venture "utility" jet interceptor to prove that high performance and operational efficiency can be achieved at a fraction of the cost and less than half the weight of current fighters. It is a step in the right direction, for present-day fighters are becoming far too complex for either their own safety or the taxpayer's pocket. If we can save money by buying Folland interceptors and lightweight aircraft like the Defender for ground attack, we might be able to avoid having to use them by affording enough Vulcans and Valiants to deter aggression.

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The R.A.F. Ensign at Car Nicobar: to the right the tallest palm with the Euraka Beacon aerial

The witch doctors of the village of Parka, Car Nicobar

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CAR NICOBAR

By Flight Lieutenant R. I. Gray, A.M.I.E.E.

THAT crescent-shaped backbone of volcanic mountains, linking Arakan Yoma, in Burma, with Sumatra and the Sunda Islands, seemed to be both the cause and solution of the problem. Where it submerges in the Bay of Bengal to form the Andamans and Nicobars, it leaves a broad navigable channel between the northern tip of Sumatra and Great Nicobar, the main entrance to the anonymous sea that stretches from the Gulf of Martaban to the Straits of Malacca.

A NAVIGATION PROBLEM

Up to 1947, Royal Air Force aircraft crossing the Bay of Bengal from west to east, bound for Singapore, were finding it hard to navigate this channel. A special radar equipment, called Loran B.A.B.S., had been installed on the west coast of the Malay Peninsula, at Butterworth, in Province Wellesley, to give a directional beam through the gap, also a radio beacon was in operation on the Indonesian island of Sabang, off the north-east corner of Sumatra. Yet, after flying east from Ceylon for a thousand miles in bad monsoon weather, aircraft could not be sure of their position in relation to the mountains of North Sumatra, which rise to about 8,000 feet. So it was decided to provide radio aids to navigation, and diversion facilities in the Nicobar Islands.

THE NICOBAR ISLANDS

Twelve of the nineteen islands in the Nicobars have been inhabited, probably for the last fifteen centuries, by a squat, black Mongoloid race, similar to the Aboriginal tribes of Malaya. They are quite different from the present Malays, who came from the East Indies. Although it is rumoured that up to the last generation they were cannibals, they treated the early traders, and even missionaries, with respect. Up to the seventeenth century there were vague conflicts between Portugal, France, Denmark and Great Britain for a foothold in the Nicobars. The Danes were the most persistent colonists, but finally they gave way to the British, who, through India, suppressed the staple industry of wrecking and piracy, and established a penal settlement in the Nancowry-Camorta harbour. Most of the islands, particularly in the south, are mountainous and thickly wooded, but the most northerly island is a striking contrast.

Facing the Andamans, across the seventy-five miles of sea known as the Ten-Degree Channel, lies Car Nicobar. It is a flat, rectangular, coral outcrop about twelve miles north to south, and four miles across. Low wooded hills on the west coast give way to a central- and east-coast plain of low jungle and coco-nut palms, the life's blood of the island. In a few acres of clearing in the south-east corner, the Nicobarese cultivate a coarse grass used for house thatching. It was from this grass land northwards into the coco-nut plantations that the Japanese built a coral-concrete runway during their occupation, from 1942 to 1945, and so solved for us the problem of finding a site for our signals detachment which could be used for diversions and be supplied by air and sea.

ROYAL AIR FORCE, CAR NICOBAR

The plan with which I was involved at Air Headquarters, Malaya, fell readily into two parts: an air transported signals unit, followed by a permanent

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camp brought in by sea. The sea move presented some problems. There are no safe anchorages in which to shelter from the two monsoons, but in the two calm periods, from February to April, and in October, ships can anchor off the coral reef which runs down the east coast. From there, through a gap in the reef, cargoes can be ferried ashore in shallow-draught boats to a small stone jetty standing out into less than two fathoms of water at high tide. On the other hand, apart from obtaining formal permission from the Government of India, to whom the islands had returned after liberation, there were no limitations on the airlift plan, and, as soon as the equipment was ready, we went ahead.

A Medical officer, an A.M.W.D. representative, two L.A.C. mechanics and myself, with technical equipment and return petrol, made up the load of the No. 48 Squadron Dakota which took off from Singapore at dawn on 6th June, 1947. The weather forecast had not been good. North-west of Butterworth we ran into a storm belt in which we tossed and turned for several hours before we were able to break cloud and follow the white surf-line and wooded hills of the Nicobars to our destination.

We were met by the Commissioner, Major D'Issa Boomgardt (late of the Indian Army), with his young English wife, and all those islanders who could reach the airstrip from the time they had heard our engines. During the night a violent storm had struck the island, and as we drove along in the Major's jeep we saw about us the fallen coco-nut palms and damaged houses. Over a very surprising and welcome meal of eggs and bacon we were advised not to pitch a tented camp alongside the airstrip, but were pressed to stay in his house until the weather cleared, and to build a more secure camp.

By late afternoon we had unpacked and partly installed our radio equipment in an old Japanese radar vehicle, which had been used as a playhouse for the Major's daughter, Eileen. We called a halt at sunset while the Major, an enthusiastic Anglophil, insisted upon joining us in a ceremony of hoisting and lowering the R.A.F. Ensign from a hastily-erected gaff. The villagers watched in silence from the gathering shadows of the edge of the clearing.

Working through the night by torch-light, we unshipped the cabin, by now christened "Eileen's Retreat," from its vehicle turn-table, and in the morning, with the help of many willing hands and one of the four serviceable Japanese trucks, we moved it to the temporary site at the edge of the airstrip. The young vegetation that had encroached upon the runway verge had been cut back to the coco-nut palms, and here, at the base of one of the tallest, we set up the cabin on trestles, with a lean-to housing the generator sets. The Euraka Beacon aerial had to be well clear of the tree tops for good performance, so we cut a forty-foot bamboo, fixed the aerial on to the thin end, and gave it to two boys to mount on the top of our palm tree. The process looked simple; with a twisted loop of grasses around their ankles and a matchet held round the the trunk to bite into the bark, the boys climbed the tree like monkeys. Yet I felt anxious until the bamboo was securely lashed, particularly when the red ants, dislodged from the nut cluster, showered down on the boys' heads. But there, finally, was the aerial, six feet clear of the leaves, and almost the highest point on the centre of the island. We slung the wireless aerial between this and another tree, and all leads went down into the cabin below. To allow for the movement of the palms, we tied lumps of coral on the guy lines, and the rigging rode in the pulley blocks.

After a diversion and a night stop at Sabang, because of the bad weather, a second Dakota arrived, and we were able to consolidate the camp. Soon everything was working, and regular wireless schedules were being maintained with Singapore. The Euraka Beacon had been seen at about seventy-five miles by an

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incoming Dakota, so we were reasonably happy and had time then to relax and take stock of the island.

LIFE ON THE ISLAND

The population of about 5,000 was divided amongst twelve villages, each ruled by a captain, who answered to the Commissioner on all matters. I saw one parliament in session. The twelve captains, with their advisers, were sitting in a semi-circle round the steps of the Commissioners' house, and the Major was sitting on the top step listening to their domestic problems. From what I could see, it was quite democratic, but the Major had an over-riding vote. Moreover, he had a small force of Indian Police to add weight to his arguments.

The villages are most impressive places. Standing in a clean, sandy clearing in the jungle are five or six large thatched houses and probably a white-washed stone church. News travels so fast that there is usually a reception committee for visitors, and my first visit to the village of Perka brought out the team of witch-doctors, especially arrayed in their traditional costumes, complete with necklaces of shells and teeth. As soon as they saw my camera they posed themselves in football-team fashion, with the front row squatting.

The houses are beehive-shaped, either circular or oval, and stand on props about six feet above the ground. The roof-cum-wall is a framework of bamboo supporting a thick thatch of long, coarse grass from their cultivated field. There are no windows, but sometimes small louvres ventilate the ends of the larger oval houses. The floor is a lattice of bamboo, through which the occupants get both ventilation and indirect lighting. A bamboo ladder leads down through a hole in the floor to the ground, where most of the household effects are stored in the shelter of the house.

Climbing inside one of the houses, I was impressed by its cool airiness. I found afterwards that upwards of forty people might crowd in to sleep, and could imagine the effect of the floor being almost covered.

The islanders are a fine, well-developed race, mentally alert, not very industrious, and they live for about seventy or eighty years. The fully-grown men are about five feet tall, strong and of pleasant appearance, but the women, a few inches shorter than the men, are quite repulsive. We issued the usual warnings to airmen, but I think they were unnecessary. It was the plug of tobacco under the top lip which, I thought, looked most unladylike. I got the impression they washed infrequently.

We went often down to the jetty to swim, where there is a fine white beach and about ten feet of water at high tide. We were usually joined by a laughing group of Nicobarese boys in diving and swimming competitions; but I never saw any women in the water, and it could not have been modesty that held them back because they wore nothing but skirts. Perhaps it was the sharks that nosed their way through the gap in the coral reef, keeping us and the fishermen on the alert.

A Nicobarese fisherman is most interesting to watch. He wades out into waist-high water, with his weighted net over his shoulder, looking for schools of fish —small, silver fish, somewhat bigger than sprats. Suddenly he casts his net so that it flies out flat over the water, and as it sinks, he quickly pulls it into a trawl. He catches surprisingly few. He pushes two or three fishes head first into his mouth and chews away slowly, with their tails waggling between his lips, while he looks about for more schools. He seldom takes any fish home, and is not easily persuaded to sell any, he catches no more than he wants. It was this attitude towards work in general which created our labour problem.

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When we first started building our camp there were plenty of labourers, and they worked with boyish enthusiasm and curiosity, but it rapidly died away. The only currency on the island at that time was the coco-nut, their main trade and food, so we had to introduce a new economic system to create an incentive to work. We made arrangements with the Commissioner to supply the island's only trader, an Indian, with brightly coloured cotton cloth, tools and utensils through our R.A.F. stores. We paid the labourers in tokens, which they could cash or barter at the trader's shop, and the Indian worked on a controlled commission. However, it was not uncommon in the early stages to find, in the middle of a job, that all the labour force had melted away into the jungle. In answer to our inquiries we would discover that one of the villages was staging a wrestling match or a canoe song, and this meant that most of the island's population would be there, in holiday mood.

One afternoon I followed the rear party of my workmen as they slipped into the jungle and came out on a beach at the village of Mus. Most of the youth of the island were gathered there, and as I edged my way towards the centre of the excited crowd, I saw, near the edge of the beach, a small arena, shaded by overhanging trees. High above, in the branches, were as many early arrivals as the trees would hold, many of them young girls, while down below in the arena was an impressive group of village elders, who were obviously the organizing committee. Suddenly a champion was pushed into the centre of a sandy ring. A lot of high-spirited banter, back-slapping and cheering followed as one challenger after another was pushed forward, only to be rejected by the judges on factors of age, weight or length of arm. At last the two wrestlers faced each other, laughing and joking. At the command of the judges, they crouched down in the ready position, necks interlocked over shoulders, and arms hanging loose. The fight was on. There was a lot of jockeying for position, feints and displays of agility intended for the audience only. They clinched, with arms interlocked across the other's back, straining downwards with legs kicking and scrabbling in the sand for a balance. One went down, and, before I could see what it was all about, a point had been scored and they were back in the ready position. There was no lack of support from the uproarious crowd.

There was another big attraction. One evening the Major took all of us along to a "Canoe Song" festival. On the beach was a beautifully-made model of an old wooden trading ship woven from rushes and palms, a symbol of European invasion, I believe.

By the light of several copra fires along the beach, villagers, dressed in their brightest clothes and ornaments, were moving from one group to another eating and drinking, laughing and talking in the highest of party spirits. The visiting team from a neighbouring village hove into sight around a headland in their decorated racing canoes, and as they carried their boats up the beach they were met with ceremonial gifts of food and drink. When everyone was well warmed with coco-nut toddy, the first canoe song started. Girls in brightly coloured sarongs, some with flowers in their hair, joined hands in a circle round the fires and started off slowly stamping and shuffling their bare feet in an intricate dance to the beat of drums. Their supple bodies swayed in the firelight to the rhythm and melody of their own canoe song. Each village sang its own song, and then the model ship of grasses was burnt, amid great excitement. The songs and feasting went on through the night and when the revellers eventually retired to the nearest village, it was to sleep well into the next day.

(Continued on page 28)

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1867 AND ALL THAT

By J. M. Spaight, C.B., C.B.E., LL.D.

AMERICA'S NORTH-WEST BASTION

OF the network of outlying defences which the United States has thrown around its perimeter in recent years, Alaska is the north-westernmost outpost. On the eastern side there are others in Labrador, Greenland and Iceland; to the south the Caribbean islands are studded with further strongholds. Across the Atlantic, in the Azores, Britain, France and North Africa, the United States has forged additional links for its strategic chain. Saudi Arabia fills in a gap in it in the Middle East. In the Far East, Japan and Okinawa carry on the line, to make contact in the Pacific with Midway and Hawaii and thence with the north American mainland. The United States has taken pains to ensure that its defence will have ample elbow room in the next great war.

The war that is feared is, by common admission, one with Russia. It is a curious fact that perhaps the most vital pivot of America's defence, Alaska, was Russian territory less than a hundred years ago. It was only in 1867 that the United States came into possession of it. But for what happened in that year, it would not have been possible for the United States to take the security measures which it has in fact taken in that quarter. On the contrary, the air menace to the whole North American continent would have been a far graver one than it actually is.

The United States bought Alaska from Russia. She got it dirt-cheap. She paid only a little more than seven million dollars for a country larger than Great Britain, France and Germany combined. She was able to secure it at this bargain price for several reasons. It had never been of much use to Russia. It was then an unprofitable, uninviting country. The gold with which it abounded was not discovered until 1902. Since then great fortunes have been taken out of the ground. The days of the gold rush, the prospectors and the diggers are gone, but the extraction of the metal continues. It is no longer done in the old, picturesque way. It has been industrialized and made a matter of big business. The work is done by huge dredges, as big as a house, scooping up the river beds and ravines. Chains of buckets gather up the gravel, from which the gold is separated inside the dredge. The work, which goes on only from April to October, the sub-arctic conditions making work in winter impossible, is highly organized and can only be done by large undertakings. Alaska has paid many times over for the money spent on it.

Another reason why the deal of 1867 went through so easily was that at that time Russia and the United States happened to be on particularly good terms. How they came to be on such terms is in itself an interesting story.

THE MYTH OF RUSSIAN BENEVOLENCE

In 1863 the United States was in the midst of a bitter civil war. The Government at Washington and the people of the northern States were still uneasy about the issue of the conflict. Actually, though the fact was not realized, the turning point of the war came with Grant's capture of Vicksburg at the beginning of July, 1863, and Meade's repulse of Lee at Gettysburg a few days earlier. The see-saw of the conflict had not yet, however, been steadied, as it was to be by the successes of Grant and Sherman in 1864. There was a good deal of depression

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in the northern States. The people needed a tonic. They were given it in the autumn of 1863 in a dramatic way. Two Russian naval formations appeared unexpectedly in American waters. One of them dropped anchor in New York harbour, the other at San Francisco. Their arrival was welcomed enthusiastically. It was taken to mean that the Union Government had at any rate one great Power in the old world on its side. If Britain and France intervened on behalf of the Secessionists—and many people in the United States thought that they might without much warrant for the belief—Russia would stand in with the Union. Czar Alexander became in a moment the benevolent uncle in American eyes.

The belief that Russia by sending the warships to America gave proof of her determination to help save the Union persisted for many years. As late as 1881, Mr. Blaine, the Secretary of State, spoke with gratitude of the Czar's noble gesture in dispatching "a large and powerful fleet of war vessels as a proclamation of his sympathy in our struggle and of his readiness to strike a blow on the side of the Union if any foreign Power should strike a blow in aid of the insurrection."* Actually, the Czar's reason for dispatching the vessels, which were not powerful at all, being, indeed, hardly seaworthy, and would have been made short work of by the fleets of Britain and France, was not in the least that which the Americans supposed.

THE TRUE REASON

The real reason was that he wanted to get the ships out of harm's way and into a place of comparative safety. He, too, had an insurrection on his hands: it was in Poland, that is to say, the part of Poland which became a Russian province when that unhappy country was partitioned. Britain and France were in sympathy with the Poles who had revolted. The Czar feared that they might intervene on the latter's behalf, as they had intervened on Turkey's behalf in 1854. In that event the Russian fleet would have been bottled up or even captured, and it was a wise precaution to send it away to the United States, where it could be tied up in safety. There was, in fact, nothing of knight errantry or altruism in Russia's action. It was dictated by self-interest from first to last. But the Americans preferred at the time to put the (to them) more attractive construction upon it.

The stage was thus set for the business deal of 1867. Between such good friends as Russia and the United States there could be no thought of any danger to the national interests of either as a result of Alaska's changing hands. A lot of water has flown through the Bering Strait since then, and the good friends of that day are anything but good friends now. Perhaps the long arm of destiny was arranging the pieces on its chessboard for the game of power politics that was to begin eighty years later.

ALASKA'S STRATEGIC IMPORTANCE

Today, sitting in Alaska, the United States dominates the North Pacific. In the Seward promontory and the Aleutian Islands which are its seaward screen the United States Navy has bases, in Sitka, Kodiak Island and Dutch Harbour, to supplement that at Anchorage on the mainland. Dutch Harbour has been described as "the Gibraltar of Alaska."† Ladd Field at Fairbanks and Eielson, not far away, are well situated for striking at Russia's Siberian life-line. "From

* T. A. Bailey, *America Faces Russia*, 1950, p. 93, from which book the account of the incident of 1863 is taken.

† Henry Mourer, *Les Amériques et l'Empire de l'Air*, 1949, p. 212.

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Fairbanks aircraft with a range of 3,500 miles could reach . . . all the north-eastern part of the Soviet Union, from Archangel in the north-west of European Russia to the southern end of Lake Baikal and the Mongolian frontier in the south-east."‡ The Alaskan air bases serve, too, to neutralize the four big Soviet airfields in the Anadyr Valley to the south-west of the Bering Strait. Those airfields would otherwise be a definite menace to the western United States and, in particular, to the large aircraft plants near the Pacific Coast.

From Anadyr to Seattle, where the Boeing bombers are made, the distance is less than 3,000 miles; to Los Angeles, the home of the Douglas, Lockheed and other firms, and to San Diego, where Consolidated Vultee has its seat, it is less than 4,000, and Chicago, too, is within the same radius. Big bombers, refuelled in the air, could strike at these and some other centres in the United States and return to Anadyr. The atomic plant at Hanford would be well within range. The danger to all the western part of the United States would be grave if Alaska were not available for the location of interceptors, and if it could be used as a base for Soviet bombers. Fairbanks is a thousand miles nearer to the threatened centres than is Anadyr.

CANADIAN OIL AND URANIUM

It is, however, in its bearing upon the security of Western Canada that the transaction of 1867 has had perhaps its most important repercussion upon the interests of defence of the American continent and, indeed, of all the free nations. Canada is becoming one of the major oil producers of the world. She may become one of the greatest producers of uranium, rivalling the Belgian Congo. She has thus within her borders two of the sources of war strength in these days in abundant measure. Since 1947, when the Leduc oilfield in Alberta was discovered, oil production in that province has advanced by leaps and bounds. Nearly all of it comes from the Leduc and three other oilfields—Redwater, Turner Valley and Lloydminster—but others are under development and the total output may be increased enormously in the next few years. The average distance of these oilfields from the frontier of Alaska is only a little more than 1,000 miles, and the danger to them if an enemy were in possession of that territory is obvious. That is true also of the uranium workings in the North-west Territories and Northern Saskatchewan. The distance from the Alaskan frontier to Port Radium on the east shore of Great Bear Lake is only about 700 miles, and that to the workings north of Lake Athabasca about 1,200 miles. All these possible objectives are the less vulnerable so long as the peninsula is held in the powerful grip of Canada's great neighbour to the south.

It is conceivable, no doubt, that if Alaska were still in Russian hands the United States and Canada might establish air bases in the Yukon or near it, to guard the north-west approaches. They would be only a second-best. The presence of the Russians in Alaska would be in itself a more serious threat to American security because from it a blow could be delivered more swiftly than from the Siberian mainland and the time of warning before it was driven home would be reduced.

A DANGER AVERTED

It would have a disturbing effect upon the American home front and its morale. The situation would be almost as if an "Overlord" invasion of the American continent had been successfully accomplished by the enemy. The Canadian Government might be inclined to think twice before it agreed to

‡ J. C. Cooper, *The Right to Fly*, 1947, p. 254.

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twelve of its Sabre squadrons joining the N.A.T.O. forces in Europe. The Washington Government would have to keep looking over its left shoulder just when its attention should have been concentrated on a vital grapple on or under or beyond the Atlantic. With Alaska in American hands the north-west can be safeguarded so far as it is humanly possible.

Assuredly the Russian Government could have had no inkling at the time of the ultimate consequences of what it did in 1867, nor can the United States Government, for that matter, have had little more than a shadowy conception of the strategic importance of the purchase which it made. The world was an utterly different one then. Perhaps it will be transformed even more marvellously in the next hundred years than it was in the last. An international situation which we cannot even dimly foresee may have emerged before another century is gone. The affiliations of the nations may have changed out of all knowing. There may have come into existence instruments and methods of war which would seem to us as fantastic as those of today would have seemed to our great-grandfathers. Men may have flown to the moon, or Mars, or heaven knows where by then. It may be a Chestertonian nightmare of a universe which our children's children will inherit,

> Where clashed and thundered unthinkable wings
> Round an incredible star.

THE NEARER OUTLOOK

But all that is a vision of the far future. For the present the old imperatives of defence remain, and one of them is "Look to your moat"—which means, in our days, see that you have a good tank trap between you and your potential enemy. (But the danger of parachute descents has also to be borne in mind.) The Bering Strait is a good moat. That it is there, that the Russians are on the far side of it, is something for which the peoples of North America may be grateful: grateful to the Secretary of State of that day, William H. Seward, who carried through the purchase in face of a good deal of opposition and many jeers at "Seward's Folly" and "Seward's Ice-box"; grateful, too, indeed to the men in St. Petersburg who—possibly having had too much vodka that day—made that very bad bargain eighty-five years ago.

To them in the first instance it is due that we have today a situation in which the likelihood of the Russians trying their luck with a blow in that quarter of the globe does not seem to be very great. They are more likely to strike at the other side of the American continent if they do strike at all. The people of the eastern States are no less apprehensive than those in the west. New York has ready its shelters, sirens and other air-raid precautions as London had in 1939. They may be needed, but here again one wonders. The Russians will have plenty of possible targets much nearer home. If they want to hit at America they may prefer to do so at the ports of entry of her troops on the eastern side of the Atlantic, and if cities are attacked those of the United States' allies in Europe are likely to be chosen rather than American. There can, however, be no certainty about what they *will* do, and the taking of precautions against all possible dangers is by no means waste of time.

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LAND WARFARE IN THE AIR AGE

By Colonel R. M. P. Carver, C.B.E., D.S.O., M.C.

BEFORE we consider the place of land warfare in this so-called air age, we must clear our minds on the knotty problem of the balance to be maintained between the three Services. This is not just a question of umpiring between rival professional prides, but of a careful and wise use of the resources available.

The resources available to us and our allies in men and material are to a certain extent limited. Increase in resources of men can only be obtained, as far as military men are concerned, by the addition of allies—a politician's business. It is always rash to prophesy about limitations of material resources. No sooner has some expert declared that the world will run out of this or that in so many years' time than somebody discovers a hitherto unknown source of whatever it is. We cannot, however, regard sources of material as inexhaustible, for two reasons. The first is that the proportion of effort which our nations are prepared to devote to warlike preparations in peace-time is always bound to be limited; the second is that, starting from the level to which we are limited in peace, we have only a certain amount of time to play with, if the world is not to be reduced to chaos by a war of long duration in which we lose more than we gain.

The problem we have to solve has two aspects. First, how to make the best use of the limited resources that we and our allies are prepared to devote in peace-time to preparation for war in order that we may, if possible, deter Russia and her satellites from going to war at all, or, if that fails and war does come, that we start off at as great an advantage as possible. Secondly, once the war has started, what is the best way of making use of the men, materials *and time* available in order to achieve our aim—the preservation of our heritage.

SEA, AIR AND LAND

The Sea

We are one of the nations of the North Atlantic community. There is not one of them, least of all ourselves, which does not in some way or other directly or indirectly, depend upon the sea for its life. There is not a single one which could continue to fight Russia and her satellites for long without obtaining material or help in some form from across the waters of the Atlantic Ocean. At the same time our potential enemies are essentially land bound. To deprive them of the use of the oceans of the world would make little difference to their life and military effort. It follows that we cannot afford to lose the use of the sea; but, from the offensive point of view, we cannot achieve our aim by the use of sea power, the retention of which will only enable us to develop others means of offence.

The Air

An air force, whether equipped with piloted or pilotless craft, which can deliver direct blows to the heart of the enemy's homeland, represents the greatest potential threat to deter the enemy from embarking upon war. This is particularly true in peacetime, when its potentialities are unknown, incalculable and therefore liable to exaggeration. Its existence, like that of a "fleet in being" in

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naval warfare, has a secondary effect in that it forces the enemy to devote a proportion of his military effort to defensive measures. What that might involve is evident when one considers the problem of the cost of equipping the whole land mass of Communist Europe and Asia with a fully secure air defence system.

Our aim in the air should be threefold. First to maintain in peace, and develop rapidly in war, an air force capable of striking directly to the enemy's heart. Secondly to maintain in peace, and be able to increase at short notice, an air defence capable of preventing the potential enemy from gaining an immediate advantage by surprise action, or of overrunning or gravely damaging the countries of Europe before we can develop our full power. Finally, to support the armies and navies of the free nations in executing their essential tasks.

The Land

What task is then left to our armies? First to maintain a peace-time force sufficient to prevent the potential enemy from improving his position by steps short of major war. Secondly, to be able to increase that force at very short notice to a strength sufficient to prevent the countries of Europe being overrun before we can bring the full weight of our power, particularly in the air, to bear. Finally to develop a force capable of seizing and holding key areas from which we can threaten and, if need be, attack the vital arteries of communist power by air and land.

Let us analyse these three tasks in further detail.

THE PEACE-TIME TASK

The peace-time task of presenting to the enemy a sufficiently strong shield to force him to embark on a major war if he is to improve his position, is a heavy burden on the army. When this is combined with the need to subdue the attempts which the enemy may make to improve his political position by the support of subversive local elements, as in Malaya and Indo-China today, the burden is greatly increased. The experience of the last two World Wars should be ample proof to us of the folly of leaving ourselves, and Europe, so weak in peace-time that a potential aggressor is encouraged to think that he can "get away with it." All our experience over the past fifty, or even a hundred, years goes to show that warnings to an ambitious power bear little weight if the forces available *on the ground* are not sufficient to give that warning any substance. Sea power, and air power also, take time to develop their effect. The speed of operation of modern armies is such that, unless the enemy's armies can be effectively opposed, they can rapidly overrun large areas of land before the effect of sea or air power can have any influence, and the influence which these two can then exert is by that time greatly reduced.

Now, in spite of popular ideas on the subject, the increased application of science and mechanical engineering to warfare has *not* reduced the manpower required to defend a given area of land. In fact the opposite is true. From century to century and war to war, the numbers engaged in warlike activities necessary to achieve an historic decision or even to defend a given width of front have increased with every scientific or mechanical development. The employment of machines, whether on sea or land or in the air, has reduced neither the total national effect required to defend one's country nor the demand on manpower required to do so. Both have vastly increased. The task of the army in peace is now not only to provide the men needed for what used to be called "Imperial Policing" but also to maintain at a state of instant readiness forces equipped, organized and trained to fight a full-scale modern war at a moment's notice.

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The burden borne by the army in manning anti-aircraft defences is included in this and is a heavy one. If the armies are not there to provide the shield, there will be no targets for the air to attack and no bases, no warning systems to enable them to operate.

RAPID EXPANSION

No country, if it is to maintain a tolerable standard of living for its people, can in these days maintain an active peace-time army capable of opposing the full weight of attack which the potential enemy could launch against it, if it were determined to embark upon a major war. The attempt to do so would almost certainly defeat its own end. The complication of modern warfare and the speed with which operations can be developed are such that a system, by which a mass of soldiers, trained only in the most rudimentary elements of infantry warfare, can be quickly assembled into a large number of divisions in a matter of days or even weeks, no longer provides any adequate defence. Even if the individual soldiers themselves could be produced sufficiently well trained to handle their weapons, the whole machinery of command, the commanders themselves, their staffs, their signal communications and the technical units to support them need constant and continuous exercise before they can employ the soldiers and their weapons efficiently. They need a period of "working up" as the Royal Navy knows well. You can no more expect army formations to take the field immediately they are formed than you could expect a battleship to go to sea into action against the enemy within a few days of an entirely untrained complement joining the ship.

This is one of the greatest problems which the army has to face. When one considers the thousand-and-one restrictions, financial, geographic, human and others which limit the extent to which adequate training in the firing and manœuvre of modern weapons can be carried out in the British Isles, one begins to realise something of the problem. The army suffers more than the other Services in this field. The air and the sea are comparatively open and free. No financier, however obdurate, can deny that ships must go to sea and aircraft must fly if sailors and airmen are to be trained; but all will refuse to allow the tank soldier any facility whatever to practise his trade on the slightest pretext, from the preservation of butterflies to the damage to cats' eyes on the road. Archery or small-bore rifle shooting in the week-ends cannot produce a modern army. The solution to this problem *must be found*. The steps taken to mould the National Service man, after he has finished his active service, into the Territorial Army have gone a long way to help. But the facilities for realistic training and for equipping him with modern equipment are woefully inadequate. The same is true, in different ways, of most of our allies and there is a grave danger that it will be a case of "too little and too late," as it has been before.

THE WAR-TIME TASK

The examples of Napoleon and Hitler are available as warnings of the dangers of aimlessly plunging armies into the great land mass of Eurasia. No serious soldier suggests that you could win a war that way. Even if the enemies' armies had been completely defeated, what would one do then? The experience of the last war shows us that you could not maintain enormous armies permanently to suppress a large area of land, even in the comparatively small area of Western Germany where the population made no attempt at resistance. Equally, there are few soldiers who believe (and such documents as the United States Strategic Bombing Survey support them) that air action alone, even in the days of atom

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or hydrogen bombs, can achieve a permanent and lasting decision. It is doubtful if, unless the enemy is fully extended on land and industrially, it could by itself even achieve a military decision sufficient to bring hostilities to an end. It is not for the soldier to decide what the political object of our armed forces would be, that is, what results, either political or military, would be considered by our political masters to have achieved their aim. It is doubtful if "unconditional surrender" as a policy could be applied to the case which confronts us. There are, however, certain tasks which it is clear our armed forces would be called upon to perform to enable us to reach a political decision. One is clearly to maintain the greatest possible weight of an attack on the enemy's most sensitive and vulnerable sources of power. Another is to defeat as completely and rapidly as possible his military strength in the field. A third is to break away his protective ring of satellites. The achievement of these three objectives calls for three characteristics. First the ability to hold securely an initial outer ring which protects as far as possible the countries of the free world, which gives us the air bases from which we can attack the targets we need and which will serve as a springboard and as the jaws of a trap from which we can destroy his military forces, land and air, and from which we can rapidly develop swift sharp operations to knock away his satellites. Matching the enemy man for man on huge land fronts will never enable us to create the reserve land force necessary to take the offensive. We must not, however, be misled into thinking that offensive action on land can be successful without concentrating strong, modern mobile forces. Dispersed effort by small numbers of gangs of special forces, however courageous and however mobile, will not defeat the enemy's military forces. At the most it will annoy them. The offensive, when launched, must be strong and concentrated. It must follow through with relentless determination and speed to objectives which will achieve our political aim and which, when achieved, can be held, if necessary for ever.

THE PATTERN OF OUR ARMIES

What pattern does this give us for our armies? First highly competent well-equipped forces capable of deterring the communist powers, in conjunction with the ever-present air threat, from embarking on war, maintained side by side with the forces necessary to prevent communist forces winning the cold war. Secondly, a well-oiled and exercised machinery to ensure that the essential ring of bases is held securely in the first phase, if, in spite of deterrents, the communist powers decide to embark upon a World War. Finally, the weapons, the organization, the training and the trained cadres needed to produce a force which can deal concentrated, crushing and rapid blows which will defeat the military forces in the field and break away the satellites before they have time to recover and to consolidate the victory thus achieved.

THE COST

It cannot be done on the cheap. The most efficient and economical use of the combined resources of the free world, both in manpower and material, will be needed, if we are to survive. We cannot afford to maintain for a moment longer than necessary any man or any weapon in our armed forces who or which does not suit our purpose, whether for reasons of sentiment, conservatism or the pride and prejudice of different services or nations.

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THE EFFECT OF AN ATOMIC BOMB ON A MODERN AIRFIELD

By Squadron Leader P. F. Blackford

THERE is a danger that the familiarity of sensational news items about the effects of an atomic bomb may obscure the facts of its true performance. Many confusing reports have been published. Statements that a single atomic bomb would obliterate London conflict with claims that estimates of its likely effects have been exaggerated. Comforting reports that the extent of damage in Hiroshima was caused by the Japanese practice of building their houses of cardboard disregard the severe damage to their steel-framed concrete buildings a mile from the explosion. The truth is ugly enough. The atomic bomb has turned the strategic bomber from a shot-gun weapon into a lethal blade which can decisively injure the strongest nation within the space of a few days. This very fact has transformed the airfield into one of the most vital elements of a country's war potential. Until the guided missile replaces the aircraft the conventional airfield is the base from which either offensive sorties with atomic bombs might be flown or from which defending fighters could operate against the threat. Clearly airfields would be one of the first targets in any future war. From experience of the last war we know that to close an airfield effectively by orthodox bombing, heavy and repeated attacks are required. Therefore the contingency that the airfield might be a worth-while target for an atomic bomb cannot be overlooked. Although many details of the design and use of this weapon remain secret, enough has been published by the United States Atomic Energy Commission* on the experience gained from past atomic explosions for a realistic forecast of their effects on a target such as an airfield.

An airfield consists essentially of the runways, the servicing and domestic accommodation, for which a primitive standard would be acceptable in war, servicing material and aids to flying such as signals equipment. The only one of these components which could not be quickly replaced or improvised in war is the runway itself. The tyre pressures of modern aircraft are so high that they cannot operate from untreated soil and so without runways they are useless. Although serious casualties to either aircraft or to personnel would, proportionately, reduce the flying potential, prompt replacements, in the absence of other damage, might permit early restoration of the force; but serious damage to the runways of a modern airfield could be guaranteed to stop modern aircraft flying completely.

Assessments of the likely effect of an atomic bomb must be based on the nominal atomic bomb used at Hiroshima and Nagasaki, the T.N.T. equivalent of which was 20,000 tons. These bombs were relatively inefficient because fission of the available material was incomplete; so these calculations are based on minimums rather than probabilities. When the nominal atomic bomb is exploded above the surface heat radiation makes the surrounding air incandescent and within one second a ball of fire of about 450 feet radius is formed. This ball of fire, which contains the vaporized products of fission, climbs rapidly to the stratosphere, forming the characteristic mushroom cloud, which is highly radio-active. Unless the bomb is exploded below 450 feet, causing the ball of fire to touch the surface, there will be no serious residual radio-active contamination of

* *The Effects of Atomic Weapons* (United States Atomic Energy Commission and Department of Defence).

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the target. Therefore if an airfield is attacked by an atomic bomb exploded above 450 feet, direct effects will be limited to the blast, flash and nuclear radiation emitted within about ten seconds of the explosion. To compromise between devastating the maximum area around ground zero and dispersing the over-all effects, the bombs on Japan were exploded at about 2,000 feet.

In a similar attack on an airfield, precautions against horizontal blast would be ineffective because in the relatively small area covered by the airfield and its installations most of the blast would be directed downwards and would fall on the roofs of buildings and shelters. Blast walls would, however, provide useful protection against flying debris. Judging by the effects of the bombs on Japan, airfield buildings and dispersed aircraft would be seriously damaged by blast up to two miles from the explosion. The flash would start fires in combustible material such as wood, and unless shielded would cause casualties to personnel by skin burns at similar ranges. It would also induce temporary blindness in personnel who looked at the flash. Buried piping and services would probably escape damage, but the widespread fracture of water mains above ground would complicate fire fighting even if the necessary appliances remained undamaged. Casualties would probably be severe. The ground within 800 yards of ground zero would be completely devastated and within this radius protective measures other than deep shelters would be largely ineffective. Only 10 per cent. or less of the personnel within this area would be likely to survive. Beyond 800 yards protective measures would begin to have an effect in reducing the mortality percentage. Casualties to personnel would be caused by flying and falling debris, by secondary fires and flash burns and by the initial nuclear radiation of the explosion. The lightest of screens would shield personnel against the flash, but more substantial protection would be needed against the initial nuclear radiation. Against this, sixteen inches of concrete would be necessary to give safety at a range of 800 yards and without protection the dose would generally be fatal up to a radius of about 1,200 yards. The significant factor is, however, that the most important single component of the airfield, the runways, would not be damaged at all, and since there would be no residual radio activity on the surface the airfield could be used again for landing and taking off directly the radio-active cloud dispersed. To restore the airfield to operation damaged aircraft would have to be replaced and casualties among the personnel made good; the time that these measures would take would govern the time taken by the base to recover its function. It is worth while reflecting that attack with an air-burst atomic bomb might well be used by an enemy who hoped to use the airfield himself within a few hours.

The picture would be very different for a bomb exploded after penetrating the surface of the ground. The energy released would be comparable with that developed by a moderately severe earthquake, and experience of earthquake effects provides useful data for theoretical calculations on the likely result of such an atomic burst. A nominal atomic bomb would have to penetrate the earth to a depth of 600 feet before the effects of the burst could be kept under the surface and it seems unlikely that penetrations of such magnitude can be achieved. An explosion at such a depth would have only seismic effects causing serious structural damage to buildings over an area depending on the nature of the soil. An average figure for the radius of such an area would be 1,000 yards. Of course, there would be no flash or nuclear radiation effect on the surface from such an explosion. An underground burst is much more likely at a depth of up to about fifty feet in ordinary soil. In this case flash or initial radiation would be insignificant and blast effects would be about half that of an air-burst, but a crater about

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800 feet in diameter and 100 feet in depth would be caused. The contents of such a crater would weigh about half a million tons. Most of the material expelled would be highly radio-active and would seriously contaminate an area, depending on the strength and direction of the wind. In a 20-m.p.h. wind this area would probably measure about four miles down-wind and three-quarters of a mile up-wind. The crater itself would be heavily contaminated with radio activity which would decay only slowly; this would prevent access to the crater for a long time, certainly some weeks. Clearly if the crater could be made in or near the main runway, use of the airfield would be effectively denied for a long time. Even if the crater itself did not block the airfield, the area affected by expelled radio-active material would first have to be decontaminated before the airfield could be restored to use.

Radio-active contamination can easily be detected and measured by instruments, but cannot be sensed in any way by humans. Radiation doses are to some extent cumulative; therefore, since the maximum dose which the average human can tolerate is known, the time for which a man can safely work in a contaminated area can be calculated from the degree of radio activity present. If this exceeds a certain point personnel cannot enter the area at all until the contamination has decayed to a safe level. Radio activity has no immediate physical effects on the human body. Exposure to an overdose will lead to an incapacitating effect known as radiation sickness, but even after a lethal dose there are no physical effects for several hours. Death will follow a fatal dose in about a week. Where the dose is not lethal the casualty will eventually recover completely.

Decontamination of radio activity is possible by three basic methods. These are by burial, by allowing the contamination to decay to a safe level, and by physical removal of the contaminating radio-active particles. All methods are subject to the overriding factor that no active measures at all can be taken until the contamination has decayed sufficiently to allow rescue and repair personnel to enter the area for a useful period. On an airfield, material thrown up by an underground burst would contaminate the surface of the airfield, dispersed aircraft and the outside of airfield buildings. Some decontamination would be necessary even to allow personnel to evacuate the airfield. Grassland could be buried by deep ploughing, but on the surfaces of airfield roads, runways and buildings contamination would have to be eliminated either by chemical reagents or by physical removal of the actual surface. The chemical method depends on the conversion of the radio-active particles into a soluble compound which can be washed away by a water jet. The radio activity of the particle is not destroyed by this method; it only allows the particle to be removed. Where the particles have penetrated the surface they can only be eliminated by removing the surface by some process such as sand-blasting. Decontamination by either method leaves the serious problem that the removed radio-active particles must still be disposed of safely. Clearly an atomic bomb accurately placed on an airfield and fused to explode at maximum depth of penetration would certainly stop flying from that airfield for a considerable time.

There remains a third possibility, that of the atomic bomb exploded on the surface. The crater would be much smaller than that caused by an underground explosion, with similar residual radio activity both of the crater itself and the material expelled. Part of the potential energy developed by the fission would produce similar, though much less intense, blast and flash as that caused by an air burst because some of the energy would be dissipated in seismic and cratering effects. Since the factors most likely to deny use of the airfield would be the size of the crater and of the area contaminated by radio-active particles, the surface-

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burst atomic bomb would not be as effective a weapon as the underground burst. However, it is worth reflecting that, unless an atomic bomb can be designed to remain safe after a crash or crash fire, the surface-exploded bomb may well result from a take-off crash.

No doubt the appropriate national authorities are taking steps to provide the necessary equipment and training to minimize the effects of atomic bomb attacks, but plainly such an attack would effectively put an airfield out of action for a considerable period. Figures based on the nominal atomic bomb are probably realistic because they are quite serious enough without any increase in the bomb's effectiveness. More powerful atomic bombs would not necessarily be more effective against targets such as airfields. For such use the tendency will probably be to reduce the size of the bomb without impairing its destructive power, so that it can be delivered by smaller and faster bombers. It would be wasteful to over-hit an airfield with a weapon which might be used more effectively against a more dispersed target. The threat of the atomic bomb is one of the most powerful international forces at work in the world today. The airfield projects this weapon which makes it a most attractive target, and the most effective weapon against the single airfield is an atomic bomb. The decisive duel of a future war might well be the initial battle between the opposing strategic bomber airfields.

CAR NICOBAR

(Continued from page 16)

THE PERMANENT CAMP

However, in spite of these interruptions, work on the permanent camp progressed as soon as the seaborne supplies came in. On the seaward edge of the grass clearing, near the end of the runway, a semi-circle of thatched Nissen huts took shape, and soon the M.F. beacon and communication aerials were erected.

By the time the camp was completed and occupied we were practically self-contained. A weekly Dakota from Singapore brought rations, mail, literature, films and gramophone records; in fact, all those hundred and one things that become essential once the necessities can be taken for granted. The R.A.F. detachment became part of the island's existence in many ways. There were regular sports fixtures. It was amusing to see the Nicobarese displaying exaggerated sportsmanship in true Asiatic mimicry of our soccer rules, but not so amusing to see their bare feet running rings round us. We were also able to return in some measure the hospitality that had been afforded us in the early stages by the Commissioner and his wife. One of the most important services that the R.A.F. rendered was in medical assistance. The Indian doctor in charge of the small native hospital called on us for help and medical supplies when he was in difficulty, and occasionally special drugs and supplies were flown in to combat epidemics.

DEPARTURE

One day, for the first time in the island's history, poliomyelitis broke out. The detachment was flown out and put into quarantine at Butterworth. The equipment was left behind. On Car Nicobar, in spite of our medical aid, the disease met little resistance among the natives, and ran its full course.

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THE AIR FORCES IN PARLIAMENT

THE BRITISH ATOM BOMB

THE Prime Minister's statement, which he made to the House of Commons on 23rd October, 1952, on the results of the atom-bomb test among the Monte Bello Islands off the coast of Australia on 3rd October must have stirred the House considerably. The results appear to have been completely satisfactory and, while exactly fulfilling expectations, they showed that further and continuous progress was possible.

It is indeed a matter for congratulation that Britain is now able to supply herself with this new explosive weapon, not only because of its intrinsic value as a deterrent against aggression both in peace and in war but also because it enables the British Government to approach the Government of the United States of America on more or less equal terms with a view to the pooling of experiences and the exchange of technical information.

Readers of this journal will welcome this latest British achievement as a means of vastly increasing the effectiveness of air action, both in strategic bombing and in tactical air support. The fact that even some of our smaller aircraft would be able to carry and deliver these new atomic bombs will render the destructive power of each one of them many times greater than that of a number of heavy bombers carrying the bombs used over Germany during the last war. But, on the other hand, the apparently infinite potentialities of this dreadful weapon, as revealed by the Monte Bello tests, must make us pause to consider what effect the dropping of such bombs would have on our own ports and cities and on our centres of population and industry, and indeed to pray that this may never happen.

Can we not hope that the very frightfulness of these new weapons, held in reserve by us and our allies as well as by the potential enemy, may deter any would-be aggressor from his aggression? If the atom bomb makes war too frightful for anyone to contemplate it will have served its purpose even better than by being used destructively. But to be effective as a keeper of the peace it must be held in sufficient quantity to make its use a real danger; and our air forces must be fully trained in its use and ready to "deliver" the bomb at very short notice so as to make the threat of its use a real threat.

AIR OPERATIONS IN KOREA

The Minister of Defence, Earl Alexander of Tunis, in the course of his statement on the military situation in Korea, informed the House of Lords on 22nd October that, in the opinion of the responsible commanders on the spot, the Communists could break through our lines perhaps to a considerable depth but they would not be able to exploit a break-through. "They would," he said, "be under constant attack from our aircraft, which are in command of the air over the whole battle front"; and their supply lines would also be easy targets for our aircraft.

Though the Communist air forces are still growing (they now have 1,200 MIG-15's as compared with 1,000 reported in May), the Americans' confidence that their Sabre Jets can hold their own in the air is fully justified. In August and September 200 MIG-15's were destroyed or damaged, and the losses in air combat were reported to be 10 to 1 in our favour. Royal Air Force pilots serving

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with the American air forces in Korea have also shot down a number of MIG-15s.

Air power, continued the Minister of Defence, is probably the most effective weapon we can use to weaken the enemy because we are numerically inferior to him in ground forces. United Nations air forces are continually engaged in action calculated to hamper the enemy's operations. These include cutting his main lines of supply by bombing railway lines and bridges, destroying his supply dumps and depots, his communications, and the factories and plants which equip his forces.

In the earliest months of the war the enemy developed the habit of supplying his operational troops during the hours of darkness because our air superiority rendered the movement of supply columns by day impossible. Now, however, even the security of darkness is largely denied to him owing to a new technique recently developed by our air forces. Our fighter-bombers fly across the battle line "at last light" and create road-blocks on the main and secondary roads leading down from Pyongyang to the battle area and across to Wonsan. Then, during the night, our night bombers find the convoys of lorries that are held up by these road-blocks easy targets for their bombs.

Carrier-borne aircraft from H.M.S. *Ocean* have so effectively cut the enemy's west coast supply route between Pyongyang and Chinnampo that hardly one serviceable railway bridge remained along the whole line by the end of September. H.M.S. *Ocean's* aircraft have recently had their first encounter with MIG-15's and have done very well. They shot down one MIG and damaged others without loss to themselves.

DEFENCE EXPENDITURE

Mr. Churchill's announcement in the House of Commons on 4th December last, to the effect that expenditure on defence production would be reduced to an annual amount of £600 m., will have caused little surprise to those who understand the economics of rearmament; and what we lose on defence production we presumably gain on production for export. That is all to the good, if we are not imperilling our safety thereby; but only those who are really in the know can answer that one. As *The Times* leader rightly said, "The price of national safety must be paid, but the means of payment must be earned. The new figure strikes a balance between the complementary claims of arms and exports."

The original programme, produced by the previous Government, allowed for an expenditure of £4,700 m. in three years, but this rate was never attained. The present Government, by force of circumstances, reduced the planned expenditure to £725 m. in 1952-53 and £850 m. in 1953-54; and now it has again reduced it to £600 m. per annum for the next year or so. This will affect the R.A.F. in so far as production of aircraft types now in service is to be reduced; and the progress that has been made in medium bombers allows some curtailment of the earlier plans for the re-equipment of squadrons with light bombers.

Whether the reasons for the latest reductions are purely economic or whether there are strategic reasons as well, we cannot say but it is certainly wise to reduce the output of aircraft of obsolescent patterns if you have better patterns ready for production, provided the international situation warrants the risk. There are times when one can afford to lag behind in order to gain an advantage later on. It is largely a matter of timing, and that requires rare judgment.

For further light on the policy of Her Majesty's Government we look forward to the Defence White Paper for 1953, which the Prime Minister said would be

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issued in February—about a month after this number of THE ROYAL AIR FORCE QUARTERLY appears. Till then it were well to suspend judgment.

FLYING-BOATS

Dr. Reginald Bennett (M.P. for Gosport and Fareham) raised again in the House of Commons on 29th October the question of flying-boats, having done the same eighteen months previously. He feared that the future development of aviation in this country was in danger of being vitiated by our failure to develop the flying-boat, which he regarded both as a weapon and as a vehicle of the future. This suggestion will interest members of our air forces as well as those connected with civil aviation, since large flying-boats, which are the aircraft Dr. Bennett had in mind, might possibly be found better than the aircraft now used for troop carrying and for transport purposes generally.

Sir Frederick Bowhill, whose distinguished career in the Navy and Air Force is well known, had said that, in his opinion, long-distance transport planes must become larger and that this would accentuate the runway problem at airports and favour the employment of flying-boats. Sir Harry Garner, who is chief scientist to the Ministry of Supply, had also stated his opinion recently that the flying-boat would play a great part in the civil aviation of the future and would be a formidable competitor of the land plane for long-distance transport.

The question seems to depend largely upon size, which directly affects performance. For aircraft designed to transport either passengers or freight, the performance required is a combination of range, speed and propulsion, which are themselves influenced by structure, aerodynamics and, in flying-boats, hydrodynamics. Range is perhaps the most important requirement of most aircraft, whether they be civil or military aircraft; and though certain small jet fighters like the Russian MIG-15's have a very small range and endurance, range is all-important for large transport aircraft. What we surely want is an aircraft that can fly between London and New York with a reasonable pay load, "in one hop with a good margin." The margin is, of course, to allow for head winds and to provide a reserve of fuel in case a diversion is necessary.

One of the disadvantages of the big land plane is its need for ever-longer and stronger runways, which take up land that might well be used for other purposes. Another disadvantage is the great structural handicap and weight of the undercarriage, with all the strengthening points needed in the airframe for its attachment and the complicated apparatus by which it is lowered and retracted; and all this landing gear is used only for a few seconds at the beginning and end of each trip, though, of course, absolutely essential at those times.

From these two drawbacks the flying-boat does not suffer; yet it has its disadvantages. Because it must be capable of taking off from and alighting on water that may not always be smooth, it must have a specially shaped hull that does not conform with the laws of streamlining for the air. It must also have a "step"; and hitherto all flying-boats have needed a high, narrow hull to keep the propellers out of the spray. But the step of the new Princess flying-boat is reduced to a metallic ribbon about one inch deep which, while sufficient for its purpose of interrupting the passage of water under the hull, sets up much less drag than the steps of the old flying-boats. And provided we use, as we surely will before long, jet propulsion for flying-boats and thus do without propellers, the hull could be much lower and rounder and the wings could be made to spring from the fuselage. With these new proportions, the length of the hull could be twelve and a half times the beam instead of only six times the beam as heretofore; and the resulting

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aircraft would be much more slender, cheaper and easier to build, and lighter and easier to drive.

Furthermore, it is possible that the terminal and intermediate airports will put a limit on the size of land planes. Runways since the war have already increased by 50 per cent. in length, width and depth, with proportionate increases in first costs and maintenance; and it is said that at Heathrow there will be more than five square miles of concrete. In 1951 the maintenance of airports cost the State £2,800,000 more than it recovered from airline operators. The number of large airfields must necessarily be small. There are perhaps only twelve on which the Comet and other high-speed jet aircraft could land between London and Singapore, whereas a flying-boat on the same route could have at least twenty-four organized bases at which it might land if necessary. And the approaches to an alighting area on water could be flat and there need be no difficulty about overrunning.

The advantages of the large flying-boat would appear to outweigh those of the large land aircraft, particularly in the taking-off and alighting operations; and for long trips over water the flying-boat has a decided advantage in its capacity to keep afloat after a forced landing, if not indefinitely then for a much longer time than a land plane could.

All the arguments in favour of using flying-boats for civil purposes apply equally to their use for military purposes. Moreover, their water runways could not be damaged by enemy action and the problem of dispersion would easily be solved.

Another point to be considered is the probable adoption of nuclear power to drive the aircraft of the future. Nuclear aircraft will require very heavy reactors with very heavy screening, possibly amounting to 100 tons for an aircraft. And this enormous and unprofitable weight will not be reduced in flight, as liquid fuel is consumed at present; nor could it be jettisoned as fuel can be when a forced landing is imminent soon after the take-off. But the landing weight of a nuclear aircraft will be the same as its take-off weight and that has hitherto been contemplated, where large aircraft are concerned, only for water landings.

The Parliamentary Secretary to the Ministry of Supply, replying, said that the first Princess flying-boat with a Proteus II engine had already flown; but that work on the other two Princesses had been suspended until the coupled Proteus III engines should be ready. General research into the capabilities of flying-boats was being carried on, but development was at present restricted to the Princess project, which had already cost about £7,500,000.

Her Majesty's Government were not at present contemplating any other type of flying-boat, but they were developing the first Princess and they intended to work on the other two in due course. Smaller flying-boats for military or commercial purposes would profit from the experience gained on the Princess, just as the Britannia had profited from the experience gained on the Brabazon.

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EXERCISE "MAIN BRACE"

(13th-27th SEPTEMBER, 1952)

By Rear-Admiral H. E. Horan, C.B., D.S.C., R.N.

THE largest maritime—sea and air—exercise undertaken by the forces of the North Atlantic Treaty Powers took place between 13th and 27th September, 1952. The area in which it took place was in the Eastern Atlantic, North Sea and the Baltic between parallels of 55 and 68 degrees North and the meridians of 16 degrees East and 25 degrees West.

As far as the operations were concerned eight Powers contributed naval and air forces and it is interesting to note that some 160 vessels took part and 80,000 officers and men manned them. In addition many hundreds of aircraft working from shore bases carried out the duties they would have to perform in war.

That no major accidents took place in this vast array shows clearly the state of efficiency and reliability which the forces of the N.A.T.O. Powers have attained and augurs well for the future.

THE SETTING

The maritime forces employed were part of the command of the Supreme Allied Commander, Atlantic (Admiral L. D. McCormick, U.S.N.). The duty of this command is to control the sea communications in the Atlantic and thus ensure that in the event of hostilities the men and materials required by the Supreme Allied Commander, Europe (General M. B. Ridgway, U.S.), find their way safely across the ocean. A subsidiary object is that these maritime forces should provide active support to the N.A.T.O. land and air forces on the Continent.

For the purposes of the exercise it was assumed that enemy (Orange) forces had invaded the northern part of Norway from the north in addition to attacking Denmark from the south. Owing to his lack of forces to repel these assaults, General Ridgway asked Admiral McCormick for support from the maritime forces at his disposal.

Admiral McCormick at once sent a strong carrier force and an amphibious force formed from the U.S. Marine Corps. These joined the N.A.T.O. forces already in the vicinity of the British Isles and came under the command of the Commander-in-Chief, East Atlantic (Admiral Sir George Creasy), with instructions to assist the Commander-in-Chief, Allied Forces Northern Europe (Admiral Sir Patrick Brind), as might seem best.

The start of the exercise found the forces assembled in the Firth of Clyde and the Firth of Forth. Before the exercise started Admiral Creasy transferred his flag to the Maritime Headquarters at Pitreavie, from where he controlled all their movements.

NARRATIVE

The decision was taken that the best way of assisting Admiral Brind in the defence of Northern Europe was to provide carrier-borne air support to the forces in Northern Norway while at the same time running convoys from the Firth of Forth to Bergen and later sending the Amphibious Force to assist the N.A.T.O. (Blue) forces in Denmark.

Accordingly, on the day the exercise started (13th September) the main carrier striking force sailed from the Firth of Clyde accompanied by a replenishment group (logistic support force).

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Vice-Admiral Stump, U.S.N., Commander Striking Force for Exercise "Main Brace," addressing representatives at the Press Conference. Seated on his right are Admiral Sir George Creasy, of the Royal Navy (C.-in-C. Eastern Atlantic), and Air Marshal Sir Alick Stevens, R.A.F. (C.-in-C. Air Eastern Atlantic)

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ON BOARD H.M.S. "EAGLE" AT OSLO AT THE CONCLUSION OF EXERCISE "MAIN BRACE"

*Standing (Left to right): Crown Prince Olaf of Norway, **Rear-Admiral J. Hughes-Hallett**, Royal Navy (Flag Officer Heavy Squadron)*
*Seated: Admiral Sir Patrick Brind, Royal Navy (C.-in-C. North), **H.M. King Haakon of Norway**, Admiral Sir George Creasy, Royal Navy (C.-in-C. Eastern Atlantic)*

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Prior to the sailing of this main body, the maritime air forces of the Blue side, under the command of Air Marshal Sir Alick Stevens (Air Commander-in-Chief, Eastern Atlantic), were in the air patrolling the area of the exercise with orders to "locate and report, attack and destroy" any enemy met with. This was no mean task because the area in which the exercise took place covered some 900,000 square miles.

The aircraft employed were mostly Shackletons and Sunderlands of Coastal Command with a strong force of Mariner Flying boats of the U.S. Navy. These aircraft operated from the normal peace-time bases, but in addition the war-time base at Sollum Voe in the Shetlands was recommissioned to extend the range of the flying boats to the northward.

The Orange forces were very quick off the mark. Before the main striking force was clear of the Firth of Clyde they encountered an "enemy" submarine and at the same time reports of submarines were coming in from the patrolling aircraft in the Firth of Forth and Shetland areas.

During the ensuing two days the main striking force made its way to the northward and were attacked by Orange aircraft on several occasions. These attacks were met by fighters flown from the carriers and, of course, "gunfire."

As in Exercise "Castanets," from the word "go" the enemy started to lay mines in the coastal waters and all the available minesweeping forces on the Blue side were actively employed dealing with this menace.

While all this was going on a photograph reconnaissance by a Mosquito aircraft showed that an Orange raider was present at Narvik. This was H.M.C.S. *Quebec*. Further observation revealed that she had sailed. Here was another menace on the high seas. The U.S. Mariners based on Trondheim took up the hunt and shadowed her; continually reporting her position. This enabled the Norwegian submarines and destroyers to get in several attacks. However, on the morning of 15th September reports showed that the raider was to the southward of the Lofoten Islands steering to the southward at high speed. Acting on these reports the Admiral Commanding the Striking Force detached a battleship (U.S.S. *Wisconsin*) and other heavy forces to sink the raider. This was accomplished about 2200 hours on the same night in a night action. The *Quebec* promptly changed sides!

The convoy from the Firth of Forth to Bergen which had sailed at the start of the exercise with supplies and reinforcements arrived at its destination on 15th September and promptly started on its return voyage. Increased enemy submarine and air activity was reported in its vicinity but the sea and air escorts, both shore-based and carrier-borne, co-operated very effectively in the counter measures. One instance which is worthy of record occurred when a Firefly aircraft from H.M.S. *Theseus*, flying ahead of the convoy, made an attack on a submarine. The aircraft's fuel was running out and so the R.A.F. was asked to provide aircraft with longer endurance to continue the shadowing. Promptly a Coastal Command Shackleton arrived on the scene and after shadowing for a time "sank" the enemy with depth charges.

We must now return to the fortunes of the main striking force. The weather in its locality had greatly deteriorated: gale force winds and heavy seas. In spite of this a force of Orange bombers carried out an attack on it from 18,000 feet in the vicinity of Narvik. It was reported that radar was used in this attack.

After providing carrier-borne aircraft for the support of the Blue forces in Northern Norway and exercising bombardment practices, using live ammunition, the main striking force turned south to lend their support to the operations in Denmark. On the way south they replenished from the "logistic support force."

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EXERCISE "MAIN BRACE"

Flag Officer Flotillas (Home), Rear-Admiral W. G. A. Robson, in transit by Jackstay to U.S. Destroyer "F. T. Berry"

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thus obviating any return to their base. The evolution has been brought to a fine art as the result of experience of the war in the Pacific. In this theatre it was customary for the fleet to keep the sea for three weeks and more at a time.

The operations in Denmark now claim our attention. Here at the beginning of the exercise Orange sea forces were active in the area at the southern entrance to the Cattegat. They were met by the Blue forces stationed there and withdrew in the face of them. However, Orange land forces were massing on the Schleswig Holstein border and it was reported that a raider was about to break out.

To provide support for the N.A.T.O. forces in Denmark a Blue carrier force sailed from Rosyth. Following this came the U.S. Amphibious Force with the U.S. Marines. In this way all Blue forces were concentrating in the vicinity of the Skaggerak.

While all the Blue sea forces were making their way towards the Skaw, Orange bombers put in several attacks. They were met by fighters from the carriers on each occasion. Also Orange submarines concentrated to oppose the passage of the relieving forces. But in spite of all this enemy activity the relieving forces arrived off the north coast of Jutland and the U.S. Marines were duly landed.

It would be wrong to close the narrative without mention of a final incident. Late on the night of 22nd September the Blue authorities became aware that the raider from the Baltic had broken out and was making its way to the northward. About midnight Shackletons of Coastal Command already on anti-submarine reconnaissance were diverted to new patrols in an attempt to locate and shadow the raider. The wea her was extremely bad with low visibility, strong winds and rain. The raider—H.M.S. *Apollo*—was located by an aircraft from Topcliffe at 0800 hrs. on 23rd September, when she was in a position 230 miles east of Kinnaird Head. Admiral Creasy at once instructed the Admiral Commanding the Main Striking Force (Vice-Admiral Stump, U.S.N.) to detach forces to deal with the menace. This was done and, acting on the aircraft reports, the forces closed in. Meanwhile six Sea Hornets of 809 Naval Air Squadron, which had formerly operated with the Orange forces, became Blue aircraft and, under the control of 18 Group Coastal Command, were scrambled from Leuchars to make rocket attacks on the raider. Flying through extremely bad weather, with cloud base of 100 feet and visibility varying between 500 and 1,000 yards, the Hornets located their target at 1150 and made determined attacks which were adjudged to have badly crippled the *Apollo* and reduced her speed. Six minutes later the U.S.S. *Quincey*, which had been detached by Admiral Stump, reported that she had the raider under fire at extreme range and shortly afterwards the latter was adjudged "sunk."

GENERAL REMARKS

In the space available it has been impossible to recount every episode in this exercise. But in looking at the exercise as a whole certain facts emerge.

It is clear that the co-operation between the various nations in the North Atlantic Treaty Organization has reached a high state of efficiency. Further, the way the maritime arms—sea and air—can act in conjunction to achieve a common object reflects great credit on their training, which, of course, is the responsibility of S.H.A.P.E.

The exercise was primarily designed to give as much training as possible to all the forces engaged, therefore casualties were not imposed during the course of the operations but would, of course, have been assessed at the end.

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EXERCISE "MAIN BRACE"

A task force in line ahead in the North Sea, headed by the Cruiser H.M.S. "Swiftsure" with British and Netherlands destroyers following

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Every type of naval craft from battleships to fast patrol boats and even midget submarines, carried out the duties they would have to perform in war. It is good to see that an amphibious element was introduced, as this form of warfare is particularly suited to the power (or powers) who can control the sea communications. It is disappointing, however, to see that no British Amphibious Force took part.

The importance and effectiveness of air power in operations over the sea was very clearly brought to the fore. The examples quoted clearly show to what a state of efficiency the team-work between the sea and air forces has been brought. The results are very gratifying.

But when all is said and done this exercise, although it covered a large area, must be looked on as only being part of the whole problem. Exercise "Castanets," carried out earlier in the year, was a test of the control of the sea communications in the Western Approaches and the Narrow Seas. To a large extent the forces employed in "Main Brace" were the same as those in "Castanets." In war both these operations would be going on at one and the same time. This clearly shows the necessity for more and more sea and air forces as stressed by Admiral McCormick at the final conference in Oslo before he left for America.

Nelson's cry for "more frigates" is once again echoed. Nowadays this includes aircraft; they are the "eyes of the fleet." If this wanted any confirmation this exercise has clearly done this.

It is sincerely to be hoped that more and larger exercises like "Main Brace" may be on the programme for next year and that they may not be confined to any one area but may be world wide and carried out at the same time. It is only in this way that the communications organization on which depends the control of all the forces engaged can be given a thorough test.

Looking at this exercise from an outsider's point of view one is tempted to speculate on why there is a Supreme Allied Commander, Atlantic. This officer has his headquarters in Norfolk, Virginia, and from there it is quite impossible for him to command operations in the vicinity of the British Isles. He cannot be cognisant of the situation on the spot and therefore any decisions he may make are open to suspicion. Surely it would be very much better to have the same arrangement as in the last war, where executive command was exercised by "the man on the spot" and general directives were issued by the Combined Chiefs of Staff.

The system which this country has always advocated is that whereby the officers commanding the forces in any theatre should act together and form a modified Holy Trinity. In this way there is no predominant influence and the employment of the forces to attain any given object is decided on in conjunction only after close consultation. This on the face of it sounds only common sense.

It is clear that in Exercise "Main Brace" the close integration between the Naval and Air Commanders in Chief and their staffs reached a state of efficiency which it is a pleasure to consider. It is only in this way that fighting forces can develop their maximum striking power.

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The C.A.S. (Designate) inspects a Guard of Honour at Changi, October, 18th 1952

[*Photo: Ministry of Defence, Karachi*

Air Chief Marshal Sir William F. Dickson, K.C.B., K.B.E., D.S.O., A.F.C., R.A.F., inspects a Guard of Honour (Royal Pakistan Air Force Apprentices) at Korangi Creek, 13th October, 1952

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CURRENT EVENTS

Chief of the Air Staff : World Tour

BEFORE taking up his appointment as Chief of the Air Staff of the Royal Air Force, Air Chief Marshal Sir William F. Dickson, K.C.B., K.B.E., D.S.O., A.F.C., made a world tour of air bases during which he visited R.A.F. units of the Middle East Air Force and Far East Air Force. He also visited Pakistan, India, Indonesia, Australia, New Zealand, Canada and the United States, Sir William left London Airport at midnight on 9th October in a Hastings aircraft of Transport Command, for Fayid, and whilst in the Suez Canal Zone visited the Headquarters. He made calls at Karachi and Delhi, and then proceeded to Headquarters and units of the Far East Air Force. Djakarta was visited on the flight to Australia and at this stage of the tour Sir William visited the Woomera rocket range (upon which there is a special article in this number of the ROYAL AIR FORCE QUARTERLY). He then flew to New Zealand, where he was met by the Chief of the R.N.Z.A.F. Air Staff, Air Vice-Marshal D. V. Carnegie, C.B., C.B.E., A.F.C., R.A.F., continuing his tour from there to Manila, China (Hong Kong) and Japan, before leaving for his visit to the United States and Canada. From the many excellent pictures which were generously air-mailed to this Journal, it was difficult to make a selection within the limitations of the space available, but the smartness of the guards of honour at Changi and again at Korangi Creek are fair examples of the excellent turn-out of officers and men which met him at each stage of his world tour. He was accompanied by his Personal Staff Officer, Squadron Leader R. A. Cooper. On the flight as far as Japan two cadets of the Air Training Corps acted as assistant air quartermasters. The flight from Tokyo to Washington, via Guam and Hawaii, was in U.S.A.F. aircraft and that from Washington to Ottawa in aircraft of the Royal Canadian Air Force.

Space precludes the publication of the C.A.S.'s itinerary in detail, but a study of it gives a clear indication of the strenuous nature of this tour, the vast distances covered and the numerous Air Force, Commonwealth and U.S.A.F. air bases visited during the months of October and November, 1952.

The very considerable amount of information he will have obtained at first hand will undoubtedly be of great assistance to him in his new appointment as Chief of the Air Staff of the Royal Air Force, in which we wish him every success for the future.

Training Flights

Long-distance training flights to all parts of the world are now almost commonplace routine training. In the last few months of 1952 many such flights were made north, east, south and west.

The special Lincoln aircraft, "Aries," from the Royal Air Force Flying College, Manby, Lincolnshire, captained by Squadron Leader J. T. Lawrence, A.F.C., with three co-pilots—Wing Commander S. B. Grant, D.F.C., and Lieutenant-Colonel E. A. Butts, United States Air Force (students at the College) and Squadron Leader W. E. Hasson (College Flying Medical Officer)—taking as a passenger Dr. G. C. L. Bertram (Director of the Scott Polar Research Institute), flew via Keflavik, over the North Pole to the R.C.A.F. base at White Horse, Yukon, a distance of 3,812 miles, lasting eighteen and a half hours. A non-stop return journey to Manby of 4,174 miles was then made.

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The day following the departure of the "Aries," two Hastings aircraft, captained by Wing Commanders P. W. D. Heal, A.F.C., and R. T. Frogley, D.F.C., left for Keflavik, from where, next day, they flew on to Resolute Bay, which lies within the Arctic Circle. The return journey was made over Northern and Eastern Greenland. Group Captain H. J. Kirkpatrick, C.B.E., D.F.C., Chief Instructor at the College, commanded the flight, flying as co-pilot in one of the Hastings.

Another flight of two Lincoln aircraft left the same day as the Hastings, captained by Wing Commanders A. H. Humphrey, O.B.E., D.F.C., A.F.C., and C. S. G. Stanbury, D.S.O., D.F.C., flying via Keflavik to Churchill, Manitoba, returning to Manby four days later. Altogether fifty-five officers and airmen, of whom fifteen were servicing staff, took part in these flights.

From Lyneham, Wiltshire, two Hastings aircraft of R.A.F. Transport Command flew to the U.S.A.F. base in North-West Greenland, from where they made flights of 400 miles to the Greenland ice-cap to drop eighty-two tons of supplies to an advance party of the British North Greenland Expedition.

From Prestwick, Washington and Lincoln aircraft of R.A.F. Bomber Command flew to Davis-Monthan Air Force Base, Tucson, Arizona, to take part in the U.S.A.F. Strategic Air Command bombing competition. The R.A.F. team of thirty-two aircrew officers and N.C.Os. and a ground crew of eleven N.C.Os., was commanded by Wing Commander H. N. G. Wheeler, D.S.O., O.B.E., D.F.C., who is Wing Commander in charge of flying at Marham.

From London, the Air Officer Commanding-in-Chief, Bomber Command, Air Chief Marshal Sir Hugh P. Lloyd, K.C.B., K.B.E., M.C., D.F.C., LL.D., flew in a standard Mark 2 Canberra bomber to Nairobi to take part in ceremonies marking the completion of the photographing of African territory by aircraft of No. 82 Squadron, R.A.F. The pilot, Wing Commander H. P. Connolly, A.F.M., D.F.C., is Wing Commander in charge of flying at Binbrook.

To take part in Exercise "Emigrant" in Canada, planned by the Supreme Allied Command, Atlantic, six Shackleton maritime-reconnaissance aircraft of No. 269 Squadron, R.A.F. Coastal Command, flew via the Azores to the R.C.A.F. base at Greenwood, Nova Scotia, and during their stay made visits to Ottawa, Halifax and Montreal. The return journey was made via Goose Bay and Keflavik. Commanding No. 269 Squadron's aircraft was the Officer Commanding the unit, Squadron Leader E. Pennington, A.F.C. From R.A.F. Station, Binbrook, Lincolnshire, four Canberras of R.A.F. Bomber Command, flew to South and Central America and the Colonial territories in the Caribbean area. These jet bombers were accompanied by two Hastings aircraft of Transport Command. Altogether they visited ten foreign countries on this flight and covered a distance of nearly 24,000 miles. The flight was led by Air Vice-Marshal D. A. Boyle, C.B., C.B.E., A.F.C., Air Officer Commanding No. 1 Group, Bomber Command, who piloted one of the Canberras. The aircraft were from No. 12 Squadron, which is commanded by Squadron Leader L. G. Press, A.F.C.

Other training flights by six Canberras and five Lincolns have been made to the Mediterranean to take part in defence exercises.

These examples taken at random from the numerous training flights at the end of 1952, give some indication of the hard work that the Royal Air Force is putting in to attain a high standard of operational efficiency.

Royal Air Force to Get Sabre Jet Fighters

Under arrangements which have been made between the authorities of the United Kingdom, Canada and the United States, the Royal Air Force is to receive between 300 and 400 F.86E Sabre aircraft. Engines, electronic equipment

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and instruments are being furnished by the United States through Mutual Defence Assistance Programme funds. The airframes are being supplied and built in Canada and the aircraft assembled there under mutual aid arrangements. In addition, Canada is providing as mutual aid some engines, armament and electronic equipment as well as familiarization training for the R.A.F. ferry crews who accept delivery of the aircraft.

Main delivery of these aircraft to the R.A.F. began in December, 1952, and it is expected to be completed during 1953. Under the agreed arrangements, the aircraft will be employed in the 2nd Allied Tactical Air Force under the command of Air Marshal Sir Robert Foster. They will form an important part of the R.A.F. contribution to General Ridgway's forces, some of them replacing less modern aircraft in existing squadrons, and others going to form new squadrons.

Rapier Trophy for Canberra Crews

A trophy in the form of a rapier has been presented by the Air Officer Commanding-in-Chief, Bomber Command (Air Chief Marshal Sir Hugh P. Lloyd), to No. 231 Operational Conversion Unit, R.A.F., Bassingbourn, near Royston, Herts, for award to the crew achieving the best bombing results on each course passing through the unit. No. 231 O.C.U. is the first of the Canberra jet bomber conversion units in Bomber Command.

The competition is open to both Regular and National Service aircrews under training at Bassingbourn, and includes visual and "blind" bombing.

4,750 Tons of Supplies dropped to Security Forces in Malaya

In the four years of the campaign against the terrorists in Malaya the amount of supplies dropped by parachute by squadrons of the Far East Transport Wing to Malay Police squads and posts and British, Gurkha and Malay Army units patrolling the jungles has reached the impressive total of 11,000,000 lb. (4,750 tons), and despite the difficulties of weather and terrain the rate of loss has been less than 1 per cent. of the amount dropped.

Presentation of R.A.F. "Wings" to a Woman Pilot

Pilot Officer Jean Lennox Bird, a pilot in the Women's Royal Air Force Volunteer Reserve, who has flown about 3,000 hours in more than ninety different types of aircraft, including a large number of operational types, was presented with R.A.F. "Wings" by Air Marshal Sir Ronald Ivilaw-Chapman, K.B.E., C.B., D.F.C., A.F.C., at a special parade at No. 15 Reserve Flying School, Redhill. This creates a precedent, as she is the first woman to be awarded "Wings" since the formation of the Royal Air Force.

Middle East and Air Force Band's 10,000-Mile Tour

In the course of a two-month tour by air, recently concluded, the Middle East Air Force Band (No. 6 R.A.F. Regional Band) travelled nearly 10,000 miles, visiting nine countries and playing at R.A.F. stations in the Sudan, Aden, Pakistan, Kenya Colony, Tanganyika, Iraq, Jordan, Bahrein and Muscat and Oman, as well as giving performances in cities and towns.

The Laurence Minot Bombing Trophy, 1952

The winners of this trophy, awarded annually to the best visual bombing squadron in Bomber Command, were No. 90 Squadron equipped with Washington aircraft. The runners-up were a squadron of the 7th Air Division, United States Air Force, who were invited to participate.

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Squadrons were required to complete four separate night cross-country flights, each made by a different crew, terminating with visual bombing at a range. Points were awarded for navigational skill as well as for bombing accuracy.

The R.A.F. Quarterly : 25th Anniversary

We have recently had a reminder of the long life of our Journal. To assist in building up a complete set of the ROYAL AIR FORCE QUARTERLY the Editor has received a gift of bound volumes from 1931 to 1937. The donor of this generous gift wishes to remain anonymous, but we extend to him our grateful thanks. A quarter of a century has passed since the first copy was published. When inclined to reflect upon our labours of the past few years, it is mortifying to realize that our predecessor produced the QUARTERLY for more than twenty years. If in 1968 we still occupy the "Editorial Chair," and retain our reasoning powers at the age of 77, we may appreciate still more clearly his stupendous effort.

Aeronautical Scholarship for Women

An annual scholarship of $1,200 has been established in honour of Amelia Earhart to a woman, who holds a bachelor's degree, for graduate study in engineering with a special interest in aeronautics. Full information is obtainable from Miss J. Winifred Hughes, Alumni House, 940 South Crouse Avenue, Syracuse 10, New York.

(We have been asked by the Zonta International, U.S.A., to give publicity to this scholarship.)

AIR TRAINING CORPS (NEWS ITEM)

Air Cadets' Flying Scholarship Training

Flying clubs in various parts of the country will shortly receive members of the Air Training Corps and Combined Cadet Force (R.A.F. sections)—winners of the national £150 Flying Scholarships—for their flying training. If they pass their tests at the end of the course the cadets will receive their "A" private pilot's licence.

This flying scholarship scheme represents the most important development in the British Air Cadet movement since its inception in 1941. Over thirty flying clubs have so far received Air Ministry contracts for training. Cadets will be encouraged to complete their course in one continuous period, and must attend for at least two consecutive weeks. The aim will be to complete training in about two months.

Air Cadet Flies with Air Vice-Marshal on Middle East Tour

Corporal John Page of the Air Training Corps recently accompanied the Director-General of Organization, Air Ministry, on a three-week flying tour of the Middle East, as assistant air quartermaster.

The cadet was chosen from King's College School, Wimbledon, where the Air Vice-Marshal himself was educated.

Visit to Pakistan by A.T.C. Cadets

At the invitation of the Government of Pakistan, an officer and four cadets of the A.T.C. enjoyed a planned tour of Pakistan at the end of 1952. This followed a visit earlier in the year to the United Kingdom of an officer and four cadets of the Pakistan A.T.C.

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Results of 1951-52 Gordon Shephard Memorial Competition

Forty-two entries were received and the general standard of essays was high.
First Prize (50 *guineas*): Wing Commander C. N. Foxley-Norris, D.S.O.
Second Prize (30 *guineas*): Flight Lieutenant C. H. Burgess.
Third Prize (20 *guineas*): Flight Lieutenant J. R. Every.
Fourth Prize (10 *guineas*): Squadron Leader F. A. Coleman, B.A.

The subject for the Gordon Shephard Memorial Prize Essay Competition, 1952-53, is as follows:

"It is unlikely that in the next war we shall be given a period in which to prepare, such as occurred at the beginning of World War II. Our reserves in both air and ground crews must therefore be kept up to a high state of efficiency so that they can be mobilized and brought into action at once.

"In view of the very high degree of skill required to operate and maintain modern aircraft it is becoming increasingly difficult to keep our reserves up to front-line standards. Discuss the problems involved in keeping the reserve force up to date and in full practice and indicate how you consider the difficulties can be overcome."

The essays are not to exceed 10,000 words and should be typewritten, in triplicate. Essays should be sent direct to the Under-Secretary of State for Air, Air Ministry (D.S.T.), Richmond Terrace, Whitehall, London, S.W.1, and should reach the Air Ministry not later than 30th April, 1953.

[Full details are published in Air Ministry Order N769 of 1952.]

Marlborough College—James Steele Scholarship

There were no candidates for this scholarship in June, 1952, entrance examination at Marlborough College. The scholarship, which is more in the nature of a bursary, though there is a qualifying standard, is worth £100 a year, tenable as long as the holder remains at school, and is open to the sons of officers or ex-officers of the Royal Air Force, the Royal Auxiliary Air Force or the R.A.F. Volunteer Reserve, who are, or have been engaged on operational duties.

The scholarship will again be open for competition among eligible candidates taking the next Marlborough College entrance examination, to be held in February, 1953.

A special form of entry, obtainable from the School Secretary, must be forwarded to the Director of Personal Services (A), Air Ministry, for countersignature, and returned to the Master of Marlborough College by 1st February, 1953.

News Items from U.S.A.

Forty years ago United States military air force strength was two officers, nine enlisted men, one aeroplane, one airship and three balloons. Today the air force strength is 937,500 officers and airmen, and civilian employees total 310,000.

The F-94C Starfires are now being delivered to the U.S.A.F. for twenty-four-hour all-weather defence. It has a take-off weight of more than 20,000 pounds; length 41 ft. 5 in.; wing span 37 ft. 6 in.; height 13 ft. 7 in. Pratt & Whitney J-48-P5 jet engine, which produces a 6,250-lb thrust with afterburner, it has the greatest power of any single-engine plane in production.

Army Field Forces is awaiting delivery of two 2-place ram jet helicopters by Hiller Helicopters. They will be service evaluated at Fort Bragg, N.C. Designated the HJ-1, Hiller-Hornet has a 12-pound ram jet engine mounted on the tip of

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each of two 23-foot rotor blades. It has only two hand controls, no foot controls. Its weight is about 360 pounds and it can carry a useful load of 600 pounds at a maximum forward speed of 80 m.p.h. Suggested tactical uses include command liaison, reconnaissance, wire laying, artillery observation and evacuation of wounded. The Navy as the contracting agent ordered two of them for the Army, two for the Navy and one for the Marine Corps. Delivery is expected by June, 1953.

The Transportation and Medical Corps are looking forward to the "Army Mule," the latest thing in the Army's transportation pool. The H-25A helicopter, produced by Piasecki, can carry from four to six men plus a crew of two and will be used to haul troops and supplies to the front as well as to evacuate the wounded. Top speed is rated at 90 knots with 70 knots the normal cruising speed. A large rescue hatch (48 inches by 26 inches) is located at the forward end of the cabin in the right side of the floor, and a hydraulic hoist permits aerial hoisting of personnel, litters or loads up to 400 pounds through the hatch into the cabin.

THE SOCIETY OF BRITISH AIRCRAFT CONSTRUCTORS (NEWS ITEMS)

The name chosen by the Air Council for the new Avro 698 delta-wing bomber which is to be supplied to the Royal Air Force, is the "Vulcan." Built by A. V. Roe & Co. Ltd., the Vulcan is powered by four Rolls-Royce Avon engines.

* * *

British designers are actively working on a radical wing design which differs considerably from anything now flying, either swept-back or delta.

It is a crescent-shaped wing, that is, each wing is swept back from the fuselage and then, towards the tips, straightened out again.

The object of the crescent design is to take advantage of the best features of the three different types of wing which have been built for flying round the speed of sound—the delta, the swept-back wing and the razor-thin straight wing.

* * *

A miniature jet starter motor, only a few inches long, which fits inside aircraft jet engines, is being developed by British experts; its job is to get the big jet engine turning over at several thousand revolutions a minute from a cold start in a few seconds.

* * *

Some Royal Air Force pilots are already gaining experience in flying the delta-wing types of aircraft, now in super-priority production for Fighter and Bomber Commands.

Several R.A.F. pilots have been checked out on the Javelin two-jet all-weather fighter. Later, still more will train in special delta trainers developed from the Avro Type 707A research aircraft, with side-by-side seating for instructor and pupil.

The good handling qualities and manœuvrability of the delta-wing form have never been more convincingly displayed than in 1952 at the S.B.A.C. display, Farnborough, by the Javelin and Avro Type 698, in the hands of test pilots Waterton and Falk.

Waterton's landings in the Javelin were reckoned to be some twenty to thirty knots slower than current jets with far lower top speeds.

Test pilots report that any jet pilot can convert on to a delta without difficulty —it is as easy to fly as "faithful Annie" the Anson.

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CONCERNING R.A.F. PERSONNEL

ROYAL AIR FORCE PROMOTIONS AND APPOINTMENTS

Among the appointments and promotions announced by the Air Ministry, since the issue of the October, 1952, number of this Journal, are the following:

AIR MINISTRY

Air Vice-Marshal A. W. B. McDonald, C.B., A.F.C., as Director-General of Manning.

Air Vice-Marshal G. R. Beamish, C.B., C.B.E., as Director-General of Personnel (II).

Air Commodore D. R. Evans, C.B.E., D.F.C., as Director of Operational Requirements (B).

Air Commodore L. R. S. Freestone, O.B.E., as Director of Armament Engineering.

Air Commodore K. B. B. Cross, C.B.E., D.S.O., D.F.C., as Director of Weapons.

Air Commodore B. L. Blofeld, C.B.E., as Director of Personal Services (B).

Air Commodore W. A. Opie, C.B.E., as Director of Servicing Research and Development (at the Ministry of Supply).

BOMBER COMMAND

Air Vice-Marshal S. O. Bufton, C.B., D.F.C., as Air Officer-in-charge of Administration.

FIGHTER COMMAND

Air Commodore G. B. Keily, D.F.C., A.F.C., as a Sector Commander.

TECHNICAL TRAINING COMMAND

Air Vice-Marshal N. H. D'Aeth, C.B., C.B.E., as Air Officer-in-charge of Administration.

Air Vice-Marshal J. G. Franks, C.B.E., as Air Officer Commanding, No. 24 Group.

Air Commodore H. D. Spreckley, C.B., O.B.E., as Air Officer Commanding and Commandant of the R.A.F. Technical College, Henlow, Beds.

COASTAL COMMAND

Air Vice-Marshal R. L. Ragg, C.B., C.B.E., A.F.C., as Air Officer Commanding, No. 18 Group, and Senior Air Force Officer, Scotland.

MAINTENANCE COMMAND

Air Marshal L. G. Harvey, C.B., as Air Officer Commanding-in-Chief.

HOME COMMAND

Air Commodore P. D. Cracroft, A.F.C., as Air Officer Commanding No. 66 (Scottish) Group.

WOMEN'S ROYAL AIR FORCE

Group Officer A. Stephens, M.B.E., as Inspector of the W.R.A.F.

Group Officer M. H. Barnett, O.B.E., as Officer Commanding, W.R.A.F. Depot.

Group Officer L. H. Turner, O.B.E., as W.R.A.F. Staff Officer, Home Command.

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EUROPE

Air Commodore H. L. Maxwell, C.B.E., D.S.O., as Assistant to the Deputy Supreme Commander (Air), at Squadron Headquarters, Allied Powers, Europe.

Air Commodore G. B. M. Rhind, as Senior Techical Staff Officer at Headquarters, 2nd Tactical Air Force, Germany.

Air Commodore R. B. Lees, C.B., C.B.E., D.F.C., as Air Officer Commanding, No. 83 Group, 2nd Tactical Air Force, Germany.

CYPRUS

Air Commodore V. S. Bowling, C.B.E., as Air Officer Commanding.

PAKISTAN

Air Commodore L. E. Jarman, D.F.C., as Chief-of-Staff, Royal Pakistan Air Force.

HONG KONG

Air Commodore R. C. Field as Air Officer Commanding.

R.A.F. OFFICERS FOR IMPERIAL DEFENCE COLLEGE

The following Royal Air Force officers have been selected to attend the 1953 course at the Imperial Defence College:

General Duties Branch: Air Commodore E. M. F. Grundy, O.B.E., Deputy Chief Signals Officer, Supreme Headquarters, Allied Powers, Europe (British Element, Royal Air Force); Air Commodore J. R. Hallings-Pott, C.B.E., D.S.O., A.F.C., Headquarters, Allied Air Forces, Central Europe; Air Commodore G. I. L. Saye, C.B., O.B.E., A.F.C., Director of Manning, Air Ministry; Group Captain G. J. C. Paul, D.F.C., Deputy Director of Intelligence, Air Ministry; Group Captain G. A. Walker, C.B.E., D.S.O., D.F.C., A.D.C., Commanding Officer, R.A.F. Station, Coningsby, Lincs; Group Captain R. Faville, C.B.E., British Joint Services Mission, U.S.A.

Technical Branch: Group Captain T. N. Coslett, O.B.E., until recently on exchange duty in the U.S.A.

Equipment Branch: Group Captain V. H. B. Roth, C.B.E., Headquarters, Far East Air Force.

The course lasts a year and before it started in January the officers selected were attached to the Air Ministry for a short period so that they could be brought up to date in the current problems of the Royal Air Force.

A CORRECTION AND APOLOGY

On page 377 in our October number "Promotions." The sub-heading *after* Air Vice-Marshal to Air Marshal, should have been "Air Commodore to Air Vice-Marshal." The oversight which occasioned this mistake is deeply regretted.

EDITOR.

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HONOURS AND AWARDS

Among *London Gazette* announcements of awards, since the publication of the October, 1952, number of this Journal, were the following:

GEORGE MEDAL

Warrant Officer George Tasker Keith, Royal Air Force, on loan to Arab Legion Air Force, Amman.

DISTINGUISHED FLYING CROSS

Flight Lieutenant John Roland Douche, Royal Air Force (Korea).
Flight Lieutenant Lewis James Day, Royal Air Force (Korea).
Flight Lieutenant Robert Stanley Brand, Royal Air Force (Korea).
The undermentioned three Army officers of No. 656 (A.O.P.) Squadron:
Capt. Thomas Norman Warner Lacey, Royal Regt. of Artillery (Malaya).
Lieut. John Ferguson Campbell, Royal Regt. of Artillery (Malaya).
Lieut. David Tod Young, The Royal Scots (The Royal Regiment) (Malaya).

DISTINGUISHED FLYING MEDAL

Sergeant Donald Graham Kinch, Royal Air Force (Korea).

BRITISH EMPIRE MEDAL (MILITARY)

Corporal Derek George Short, Royal Air Force (R.C.A.F. Station, North Luffenham).

LETTER TO THE EDITOR

To the Editor THE ROYAL AIR FORCE QUARTERLY

From LORD TRENCHARD.

THE KING'S HOUSE,
BURHILL,
WALTON-ON-THAMES, SURREY.
27th November, 1952.

SIR,

I have asked Major J. G. Lockhart to write a full account of the various enterprises with which I have been connected in the course of my life, such as the formation of the Royal Air Force, the re-organization of Scotland Yard, the opening up of Nigeria, and my service in the Army.

Major Lockhart would be greatly assisted if anyone in the possession of interesting and relevant documents would be kind enough to send them to: Mrs. Hilary St. George Saunders, at 4 Crescent Mansions, 113 Fulham Road, London, S.W.3. All the papers sent will be returned.

Yours truly,
TRENCHARD.

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THE R.A.F. AND WINTER SPORTS

BY FLIGHT LIEUTENANT P. D. O. CORYTON

HAD the Royal Air Force been in existence during the last decade of the 19th century, when the British were showing to a somewhat sceptical Continent that moving in the snow from one place to another could be an exciting sport instead of a necessary evil, one feels sure that these early pioneers would have numbered many R.A.F. enthusiasts among them. For of all activities winter sports, and this includes bob-ing as well as ski-ing, require the skill and enthusiasm for adventure which has always been an integral part of the Royal Air Force.

Although the Navy, Army and Air Force had competed for a Challenge Cup in 1914, it was not until after the Great War that members of the R.A.F. took a prominent part in organizing, encouraging and competing in a sport which, partly due to their efforts, was within a few years to become universally popular.

Looking back thirty-two years we find that the President of the Ski Club of Great Britain and also of the Federal Council of British Ski Clubs was Air Commodore E. M. Maitland, killed so tragically a little later in the crash of the airship which he commanded. In the same period, the early twenties, it is difficult to find any racing event of note in which another future R.A.F. President of the S.C.G.B., Air Commodore H. C. T. Dowding (now Air Chief Marshal Lord Dowding) was not prominent.

Not only in Europe was the R.A.F. helping to blaze the trail, but in 1921, if my memory is correct, Flight Lieutenant (now Air Commodore) A. A. Walser was founding the ski club of India, while later Flight Lieutenant (now Group Captain) T. F. U. Lang, Flight Lieutenant (now Air Commodore) R. K. Hamblin and Flight Lieutenant (now Group Captain) J. S. Carslaw were successful in winning the Inter-Service Trophy in Kashmir in 1934, 1935 and 1936. Few skiers at this time could have had the experience of Group Captain Carslaw who, when mountaineering with Colonel Hunt of Everest fame in the Himalayas, was able to ski at 20,000 feet.

As the interest in winter sports grew, more and more members of the R.A.F. were to be seen on the ski slopes at most of the well-known resorts. Names are too numerous to mention in detail, but many will remember that first-class skier, the late D. J. Waghorn, one of the Schneider Trophy fliers; and Roger Bushell, a leading light in the tragic mass escape from Stalag Luft III in 1944, in which he lost his life. At this point it is well to remember that of the Ski Club of Great Britain alone, over fifty R.A.F. members gave their lives in the Second World War.

Paradoxically, the war years provided an opportunity for many who for financial or other reasons had been unable to ski before. Aircrew cadets in America and Canada often found themselves on stations near to ideal winter sports centres. Without instructors or modern equipment and wearing ski kit never seen in the Engadine, enthusiasts of all ranks were descending in a variety of unorthodox positions, ski runs as far apart as the Rockies and the Appalachians with surprisingly few injuries.

Even those who in the early retreats had escaped into Switzerland found the boredom of internment could be broken by enjoying winter sports at well-known

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resorts like Adelboden. Many became competent skiers and were the first to take up the sport again after the war.

As the war drew to its close and our armies slowly converged on the "Fatherland," the R.A.F., snatching the odd forty-eight hours, were ski-ing in the Lebanon, Cyprus, India and even Iceland, and later, when victory came, in the Italian Alps. In the first few years after the war, with Occupation Troops in Italy, Austria and Germany, the Services with the various Control Commissions (not to forget the N.A.A.F.I.) were opening up leave and rest centres wherever amenities existed in the mountains.

Cortina, in Italy, Kanzel and Turrache Hoher in Austria, Winterberg, Bad Hartzeberg and Scharfoldendorf in Germany were some of the localities which were crowded with Service skiers. A great many, of course, were beginners, but others were remembering the old maxim, "lean forward and bend the knees," taught in many different tongues in places far removed from the organized centres of Europe.

The seeds had been sown, and they of Air Ministry, sitting on their precarious peaks in Darien, saw with a more than mild surprise a new sport swim into their ken, a sport which combined all the qualities of initiative and physical fitness previously acquired on playing fields, squash and tennis courts.

Progress was rapid. Soon parties were attached to the Centre Montagne d'Air at Meribel Les Allues, where the French Air Force were training their pilots to ski. Others found themselves living a hard but enjoyable life with the War Office School of Mountain Training at Mallnitz, in Austria. Parties of Cranwell Cadets were travelling out to the Army Ski School at Schmelz, in Austria. Financial aid was given to R.A.F. ski teams in Germany to compete against the Control Commission and the Army, while the R.A.F. representative team was battling against the best of the Royal Navy and Army in the Inter-Service Championships in St. Mortiz.

In 1946 a Winter Sports Association was formed, but it was decided that owing to the shortage of time it would be better to start in a small way by first forming a bob team with the ultimate aim of entering for the 1948 Olympics.

With the experience gained in 1947, two teams were entered for the 1948 Olympics, the first team to represent Great Britain. Using an old 1936 bob, the team, consisting of Group Captain Collings, Group Captain Coles, and Squadron Leaders McLean and Holliday, competed in four runs against fifteen teams from the U.S.A., Switzerland, Rumania, Belgium, Italy, Czechoslovakia, Norway, Sweden and France. In the final result the team gained seventh place, the Italians, who were sixth, being only .9 sec. faster than the R.A.F. team. On the average over the four runs, the R.A.F. were only .5 sec. behind the winners, the U.S.A. team.

By December, 1948, the R.A.F. Winter Sports Association had enlarged to such an extent that parties of thirty were travelling to St. Moritz every fourteen days, staying at the Kulm Hotel and enjoying every type of winter sports. After two years it was agreed that the Combined Services Winter Sports Association should take over St. Moritz and the R.A.F. opened their own centre at Chamonix in France.

The R.A.F. ski team have done most creditably in the last few years, but, *Eheu fagaces*, they are not all as young as they used to be and they will be the first to admit that new blood must be found if the team is to regain the laurels last held in 1938.

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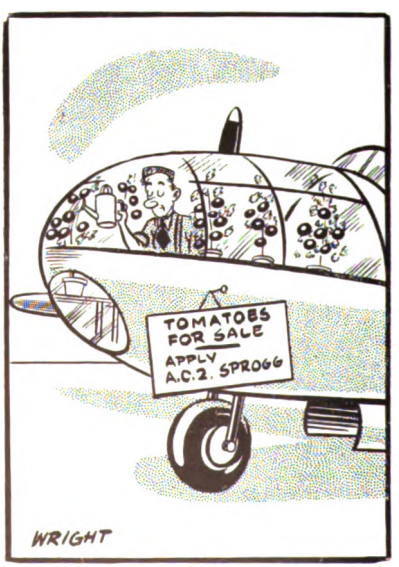
This is where the holiday scheme in Chamonix can play an important part. With modern instructional methods a skier can soon become competent, and with the "extra something" necessary for fast racing, may in a year or so find himself up to the standard required to represent the R.A.F.

Parties of cadets from Cranwell and apprentices from Halton will be in Chamonix during December, 1952, and early January, 1953, with the main parties following on at ten-day intervals from 6th January. It is hoped that among these, some will show that they have the necessary qualities to produce the teams to win back the cup which was won three times (in 1922, 1930 and 1938) on the twenty-one occasions when inter-Service championships were held between 1914 and 1952. The R.A.F. Ski-ing Championships will be held at Chamonix on 30th and 31st January, 1953.

Apart from being a training ground for future champions, Chamonix offers a really first-class holiday for anyone belonging to, or having served with, any of the Forces, and this includes families as well. The £37 12s. cost per person covers everything—travel, first-class hotel, ski instruction and equipment, ski lifts and all the etceteras, which normally cost so much more than one had planned for. For those interested, all details of this non-profit-making holiday scheme can be obtained from Powell Duffryn (Air) Ltd., 59 St. Mary Axe, London, E.C.3, who are acting on behalf of the R.A.F. Winter Sports Association.



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REVIEW OF R.A.F. SPORT—1952

BRITANNIA SHIELD COMPETITION

BY winning the boxing and shooting events, being second in the swimming and third in fencing, Great Britain represented by the Royal Air Force won the Britannia Shield for the second year running.

In this year's competition, teams selected from the Armed Forces of Belgium, the Netherlands, Norway, United States Forces in Great Britain and Great Britain (R.A.F.) competed. Belgium, the Netherlands and Great Britain competed in all four events—boxing, fencing, shooting and swimming. Norway competed in all with the exception of boxing, with the United States Forces entering a team in only the boxing and swimming.

The History and Objects of the Competition

The Britannia Shield is a perpetual challenge trophy presented for competition in a number of sporting events to commemorate the glorious and unselfish spirit that animated all during the Battle of Britain and the historic assembly on British soil of the Allied Armed Forces fighting for the freedom and independence of their countries.

The trophy was made from oak from the Guildhall, London, damaged by enemy action. The original design was produced by certain of our Allied airmen. The shield was presented by Squadron Leader E. S. Virpsha, late R.A.F.V.R.

The competition commenced in 1946, and was won the first year by Czechoslovakia. The winners in subsequent years were:

1947: France.
1948: France.
1949: France.
1950: United States Forces in Europe. (Boxing was the only event.)
1951: Royal Air Force.

For the 1952 competition all the teams assembled at Royal Air Force Station, Uxbridge, on Friday, 3rd October, and on Saturday, 4th, the Secretary of State for Air, The Right Honourable The Lord De L'Isle and Dudley, V.C., welcomed the visiting teams.

Sunday was devoted to training and getting acclimatized, then first thing on Monday the competition got under way.

The first event was the preliminary boxing held at Royal Air Force, Uxbridge.

Belgium, the Netherlands, U.S.A. Forces and the Royal Air Force all entered full teams—one boxer at each of the ten weights—fly to heavy. At the conclusion of the preliminary boxing the Royal Air Force had eight boxers through to the finals, only the light-heavy and heavy-weight competitors being eliminated. Belgium had four, the Netherlands four, with the United States Forces having a fly-weight, light-middle, light-heavy and heavy finalist.

All these competitors went through to the finals, which were held before some 10,000 spectators at the Wembley Sports Arena on Wednesday, 8th October.

The boxing was of high standard and a great credit to all who participated.

Fly-weight.—Aircraftman F. Jones (R.A.F.) defeated Private 1st Class H. Payton (U.S.A.), who retired in the second round with a leg injury.

Bantam-weight.—Aircraftman D. Robins (R.A.F.) defeated Private A. Ong. A. Kwien (Netherlands) on points.

Feather-weight.—Aircraftman P. Duffell (R.A.F.) gained a points victory over H. Bouvrie (Netherlands).

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Light-weight.—Soldat E. Borduy (Belgium) defeated Aircraftman A. Wallace (R.A.F.) on points.

Light Welter-weight.—Soldat J. Paternotte (Belgium) gained a points victory over Senior Aircraftman K. Ernest (R.A.F.).

Welter-weight.—Private M. Linneman (Netherlands) defeated Aircraftman J. Maloney (R.A.F.), the referee stopping the fight in the third round.

Light Middle-weight.—Aircraftman B. Wells (R.A.F.) gained a points victory over Airman R. Peterson (U.S.A.).

Middle-weight.—Senior Aircraftman R. Banton (R.A.F.) defeated Soldat C. Van Granzer (Belgium) on points.

Light Heavy-weight.—Private H. Lucas (Netherlands) defeated Airman Palmer (U.S.A.) on points.

Heavy-weight.—Soldat J. Payne (Belgium) gained a points victory over Airman W. Codgell (U.S.A.).

OVER-ALL POINTS FOR BOXING

	Points
Royal Air Force	31
Belgium	21
Netherlands	15
United States Forces in Britain	14

Fencing

The competition was held in three weapons, foil, épée and sabre, and staged at R.A.F., Uxbridge, on Tuesday, 7th October, 1952.

Belgium provided the winners in all three weapons, and in the over-all total points scored 25, with the Netherlands second with 20 and Royal Air Force third with 15 points.

Swimming

The swimming event held at the Eltham Baths on the evening of Tuesday the 7th, provided a surprise defeat of the Royal Air Force team. With Olympic swimmers, Aircraftman Welsh, Burns and twin brothers R. and J. Wardrop, the R.A.F. team were all set for victory, but were most surprisingly beaten to second place by a grand Netherlands team. The R.A.F. Olympic Games swimmers won their individual events but collectively they were beaten in the free-style relay, the last and deciding event of the match.

TOTAL OVER-ALL POINTS

	Points
Netherlands	43
Royal Air Force	42
Belgium	32
Norway	17
United States Forces in Great Britain	12

Shooting

This event was held on the National Rifle Association ranges at Bisley on the afternoon of Wednesday, 8th October, and provided the Royal Air Force with her first victory in the competition.

Squadron Leader C. C. Willott won the individual shoot.

The competition was held over 200, 300 and 500 yards and run-down, and was judged on aggregate.

	Distances				
	200	300	500	Run-down	Total
1. Royal Air Force	182	175	181	171	709
2. Netherlands	175	177	180	172	704
3. Norway	177	164	181	171	693
4. Belgium	170	179	178	166	693

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HIGHEST INDIVIDUAL AGGREGATES

	Points
1. Squadron Leader C. C. Willott (R.A.F.)	186
2. Lieutenant Sergeant Delaet (Belgium)	181
3. Captain H. E. Van Brucken-Fock (Netherlands)	181
4. Corporal B. R. Creasey (R.A.F.)	181

TOTAL OVER-ALL POINTS—ALL SPORTS

	Points
1. Royal Air Force	85
2. Netherlands	80
3. Belgium	75
4. Norway	35
5. United States Forces in Great Britain	34

The Britannia Shield was presented at the conclusion of the boxing by the Chief of the Air Staff, Marshal of the Royal Air Force Sir John C. Slessor, G.C.B., D.S.O., M.C., to Group Captain B. A. Chacksfield, O.B.E., Captain of the Royal Air Force team.

SWIMMING

Among the competitors at the 1952 Royal Air Force Swimming Championships were five members of the Royal Air Force who represented Great Britain at the Olympic Games.

Aircraftman Jack Wardrop, captain of the Great Britain swimming team, and now stationed at R.A.F., Cosford, won the 880 Yards Free Style and the 440 Yards Free Style events. In the 880 he knocked 30 seconds off the existing record, and in the 440 he set up a time of 4 min. 48.8 sec., which shattered the previous record by 32.2 sec.

His twin brother won the 100 Yards Back-stroke event and set up a new record with a time of 63.8 sec.; he was also second in the 100 Yards Free Style.

Aircraftman Welsh, another Scots lad stationed at R.A.F., St. Athan, won the 100 Yards Free Style event in 53.8 sec., which is also a new record. He also won the 220 Yards Free Style event. Welsh was in the Great Britain Olympic Relay team.

New figures were set up by the Technical Training Command Relay team in the 4 x 66⅔ Yards team event; they covered the distance in 2 min. 20 sec.

The Inter-Command Water-Polo Competition was won by Home Command, who defeated Technical Training Command by 6 goals to 4.

The men were not the only ones to break records. In the W.R.A.F. 66⅔ Yards Back Stroke event, the first three competitors broke the existing record, with Aircraftwoman Smedley representing Technical Training Command winning the event in 56.2 sec.

In the Medley Relay Race, each Command entered a team of three swimmers, one to swim back-stroke, one breast and one free style. Technical Training Command broke the existing record by finishing in 1 min. 14 sec.

In the over-all total points, Technical Command won both the men's and women's trophies. In the men's competition they totalled 81 points, with Flying Training Command second with 37 points. In the women's event, Technical Training scored 49 points, Fighter Command being second with 24 points.

From competitive swimming to long-distance swimming. Yorkshire-born Aircraftman Philip Mickman, now serving with the Royal Air Force at Bawdsey, Suffolk, recently swam the Channel from Dover to France. Mickman is the youngest swimmer ever to do the swim both ways. Two years ago he swam from France to England.

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LAWN TENNIS

The 1952 Inter-Services Championships were won by the Royal Air Force. The Army filled second place, with the Royal Navy third.

In the R.A.F. Individual Lawn Tennis Championships held at the All-England Club, Wimbledon, Aircraftman P. Becker, R.A.F., Innsworth, became the singles champion, and partnering Aircraftman Wooldridge, R.A.F., Bletchley, he also won the doubles.

Aircraftman Becker, although only 18 years of age, has represented Great Britain in the Davis Cup Competition.

[Copyright: D. R. Stuart, London, S.W.1

ROYAL AIR FORCE TENNIS TEAM—INTER-SERVICES CHAMPIONS, 1952

Left to right : W./Cmdr. Seebrook (Hon. Secretary and Treasurer), L.A.C. Wooldridge, A.C. K. D. Jones, L.A.C. Gathercole, A.C. R. Becker, G./Capt. B. K. Burnett (Chairman and Captain), L.A.C. E. M. G. Earl

CRICKET

The Inter-Station Competition for stations over 750 strong was won by R.A.F., Henlow, who defeated R.A.F., Dishforth, in the final by 6 wickets. Seventy-one stations competed in this competition.

The Inter-Station Competition for the smaller units was won by R.A.F., Finningley, who scored 104 runs for 8 wickets against R.A.F., South Cerney's 103 in the final match. Some eighty-nine stations competed.

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CYCLING

The Inter-Services Hard Track Championships for 1952 were held at Alexandra Park, Portsmouth, the final placings being: 1, Royal Air Force, 14 points; 2, The Army, 10 points; 3, The Royal Navy, 3 points.

The Royal Air Force also won the 4,000 Metres Team Pursuit Championship in a time of 5 min. 19.2 sec. The Army were second and the Royal Navy third. With an aggregate time of 6 hr. 9 min. 3 sec., the Royal Air Force won the Inter-Services Fifty-mile Time Trial Championships, with the Army second in 6 hr. 17 min. 15 sec. The Royal Navy were third in a time of 6 hr. 29 min. 48 sec.

The Royal Air Force entered a team in the recent Tour of Britain organized by the Daily Express. Although the team did not finish amongst the leaders, one member of our team was tenth in the individual placings.

Cycling is proving one of the more popular sports in the Royal Air Force. Hard track, grass track, 100-, 50- and 12-hour time trials are held during the season, and a five days' tour of R.A.F. Stations is proving a great success.

SQUASH RACKETS

The Inter-Services Squash Rackets Championships were held at the Army and Navy Club on 18th, 19th and 20th December, the R.A.F. versus the Army on the first day, the Royal Navy on the third day, and the Royal Navy-Army match being held on 19th December, 1952. (Results were not available at the time of going to press.)

The Royal Air Force Squash Rackets Association held their individual R.A.F. and W.R.A.F. Individual Championships at the Lansdowne Club, Berkeley Square, London, from 24th to 29th November, 1952.

R.A.F.'s PREMIER ROWING CLUB

The R.A.F. Benson Rowing Club, founded in 1948 at R.A.F. Station, Benson, Oxfordshire, which has grown to be the largest and most active in the Services, has just completed its most successful season. It has had more crews on the river than ever before, won an unequalled number of events at open regattas, and generally put up performances remarkable for a club of its size. Of ninety-three races entered, the club won sixty and gained nineteen trophies.

At Henley Royal Regatta the Senior IV reached the semi-final of the Wyfold Cup out of an entry of thirty-eight, losing to the winners in a time only three seconds outside the record for the event. The crew reached the final of the Wyfold Class IV's at Kingston and won the events at Molesey and Staines Regattas, the first time any R.A.F. crew had won a senior event in any boat larger than a pair.

Aircraftman E. A. Field, out of the Senior IV, and Aircraftman D. F. Dainton, the sculler, combined to make the Senior Coxed Pair, and won the event at two out of the three regattas they entered.

After winning the Junior-Senior Sculls at Reading Regatta and being narrowly beaten by the Belgian Olympic sculler in the final at Reading, Aircraftman Dainton entered for the Diamond Sculls at Henley and won two heats, losing in the semi-final to Tony Fox, England's Olympic representative.

The Junior-Senior Pair won the event at Maidenhead Regatta, beating a Winchester College pair. At Reading Regatta, Aircraftman J. B. Facy won the Junior Sculls Cup out of a large entry at his first attempt.

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R.A.F. SPORT, 1953 SEASON

ASSOCIATION FOOTBALL

The R.A.F. Football Association's first match of the season was against the Football Association XI on Chelsea's ground at Stamford Bridge on Wednesday, 22nd October, 1952. Matches have also been arranged against London, Oxford and Cambridge Universities. The inter-Services matches against the Royal Navy and the Army will be played on 11th and 25th March respectively, the match against the Navy on Reading Football Club's ground, with the Army game on the Wolverhampton Football Club's ground.

HOCKEY

Seventeen matches have been arranged against leading clubs this season for the representative hockey XI, the most important being the games against the other two Services, the Navy game at Portsmouth on 25th March and the Army game on the Air Force home ground at Vine Lane, Uxbridge, on 1st April.

RUGBY

The R.A.F. Rugby Union XV opened the season with the annual match against the Royal Air Force College, Cranwell, on 22nd October. The first of the inter-Service matches, Royal Air Force versus Royal Navy, will be played at Twickenham on Saturday, 14th February. The Royal Air Force and Army game will be played at Twickenham on 28th March.

CROSS-COUNTRY RUNNING

The Royal Air Force Inter-Station Cross-Country Running Championships will be held at Royal Air Force Station, Halton, on Wednesday, 11th March, 1953. The Area Preliminary Races will be held at various Royal Air Force Stations on 25th February, 1953. The first six stations and the first twelve individuals, whether running as members of stations' teams or not, will compete in the final.

The Inter-Services Cross-Country Championships will be run under the organization of the Royal Navy Amateur Athletic Association on Wednesday, 1st April, 1953.

NEW PRESIDENT OF R.A.F. ATHLETIC ASSOCIATION

Air Chief Marshal Sir John W. Baker, K.C.B., M.C., D.F.C., has consented to become President of the Royal Air Force Athletic Association in place of Air Marshal Sir Hugh S. P. Walmsley, K.C.I.E., C.B., C.B.E., M.C., D.F.C., who has retired from the R.A.F.

NEW PRESIDENT OF R.A.F. MOUNTAINEERING ASSOCIATION

Air Marshal Sir Ronald Ivelaw-Chapman, K.B.E., C.B., A.F.C., has consented to become President of the Royal Air Force Mountaineering Association in place of Air Chief Marshal the Hon. Sir Ralph A. Cochrane, G.B.E., K.C.B., A.F.C., who is retiring from the R.A.F.

R.A.F. OFFICERS' BOXING CLUB FORMED

A Royal Air Force Officers' Boxing Club has been formed. All serving and retired officers of the R.A.F. are eligible to join.

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Air Marshal Sir Thomas A. Warne-Browne, K.B.E., C.B., D.S.C., has consented to become President of the Club, and the Chairman is Wing Commander R. O. Yerbury, of the R.A.F. Staff College, Bracknell, Berks. The Honorary Secretary is Squadron Leader W. H. Brooks, Ministry of Supply, St. Giles Court, St. Giles High Street, London, W.C.2, and the Honorary Treasurer Squadron Leader R. C. Frogbrooke, Royal Air Force, Uxbridge, Middlesex.

RUGBY

Saturday, 3rd January.—*v.* Swansea, at Swansea.
Saturday, 10th January.—*v.* London Irish, at Blackheath.
Thursday, 15th January.—*v.* British Police, at Gloucester.
Saturday, 24th January.—*v.* Harlequins, at Twickenham.
Thursday, 29th January.—*v.* Leicester, at Leicester.
Wednesday, 4th February.—*v.* Cambridge University, at Watton.
Saturday, 14th February.—*v.* Royal Navy, at Twickenham.
Saturday, 21st February.—*v.* Birkenhead Park, at Birkenhead.
Saturday, 28th February.—*v.* Coventry, at Coventry.
Wednesday, 4th March.—*v.* Oxford University, at Oxford.
Saturday, 7th March.—*v.* Bedford, at Bedford.
Saturday, 14th March.—*v.* Gloucester, at Gloucester.
Wednesday, 18th March.—*v.* Civil Service, at Chiswick.
Saturday, 28th March.—*v.* Army, at Twickenham.

HOCKEY

Sunday, 11th January.—*v.* Syphons, at Byfleet.
Sunday, 18th January.—*v.* Hawks, at Uxbridge.
Wednesday, 21st January.—*v.* Cambridge University, at Cambridge.
Saturday, 24th January.—*v.* Surbiton, at Uxbridge.
Saturday, 31st January.—*v.* Southgate, at Uxbridge.
Wednesday, 4th February.—*v.* Oxford University, at Oxford.
Saturday, 14th February.—*v.* Old Kingstonians, at Uxbridge.
Saturday, 21st February.—*v.* Tulse Hill, at Tulse Hill.
Sunday, 22nd February.—*v.* Buckingham City, at Uxbridge.
Saturday, 7th March.—*v.* Wimbledon, at Wimbledon.
Wednesday, 11th March.—W.R.A.F. *v.* W.R.N.S., at Uxbridge.
Wednesday, 11th March.—*v.* Civil Service, at Chiswick.
Thursday, 12th March.—W.R.A.F. *v.* W.R.A.C., at Park Royal.
Saturday, 14th March.—*v.* Royal Air Force College, at Cranwell.
Wednesday, 25th March.—*v.* Royal Navy, at Portsmouth.
Wednesday, 1st April.—*v.* Army, at Uxbridge.

ASSOCIATION FOOTBALL

Wednesday, 28th January.—*v.* Oxford University, at Oxford.
Thursday, 12th February.—*v.* Cambridge University, at Cambridge.
Wednesday, 25th February.—*v.* London University, at Motspur Park.
Wednesday, 11th March.—*v.* Royal Navy, at Reading.
Wednesday, 25th March.—*v.* Army, at Wolverhampton.

SQUASH RACKETS

Saturday, 7th February.—*v.* Dulwich S.R.C., at Uxbridge.
Sunday, 8th February.—*v.* Bedford S.R.C., at Uxbridge.
Friday, 27th February.—*v.* Surbiton L.T.C., at Uxbridge.

CROSS-COUNTRY RUNNING

Wednesday, 25th February.—Area Championships.
Wednesday, 11th March.—Royal Air Force Championships, at Halton.
Wednesday, 1st April.—Inter-Services Championships.

NETBALL

Saturday, 17th January.—W.R.A.F. *v.* Birmingham County, at Birmingham.
Saturday, 7th February.—W.R.A.F. *v.* Civil Service, at Chiswick.
Saturday, 7th March.—W.R.A.F. *v.* Bedford P.T. College, at Bedford.
Monday, 30th March.—Inter-Services Triangular Tournament, at Halton.

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[National Defence Photo

Norwegian students who graduated on the first N.A.T.O. pilots wings parade, Centralia. Left to right : Cpl. H. Rasmussen, Cpl. K. Goa-Kjetland, Cpl. H. Sevaldsen, Cpl. K. Lunde, Lieut. S. Wang, Cpl. E. Danielsen, Cpl. E. Bakken, Cpl. A. Berntsberg, Cpl. G. Opsal, Cpl. G. Larsen

[National Defence Photo

Group of first N.A.T.O. pilots salute Air Marshal W. A. Curtis, C.A.S., following receipt of their wings during ceremonies at Centralia. Left to right : Cpl. C. Bouis, St. Florent (France), Sgt. H. Bernard, Maisons-Alfort (France), Sgt. R. L. Seynave, Lees-Nord (Belgium), C./Corp. C. Vigneron, Le Pontet (France), Lieut. G. C. Sols, Bourg-Leopold (Belgium), F./C. Paul Major, Leamington, Ontario (Canada)

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ROYAL CANADIAN AIR FORCE

R.C.A.F. TRAIN N.A.T.O. PILOTS AND NAVIGATORS

LIFE these days at many R.C.A.F. stations across Canada has an international aspect. At R.C.A.F. Station, London, Ontario, for instance, if you are interested in learning a foreign language, instruction can readily be provided in Norwegian, Italian, French, Flemish, Dutch or Danish. If you are just looking for a change of food the chef will probably recommend his gekoote tong, kjott salat, or spaghetti al ragu. The bar can provide chasers of Kummel, Sauterne, Chianti or Bols. Assorted uniforms (complete with red, orange or gold rank badges) are available in a wide range of materials and colours—white silk for walking out, royal blue serge for C.O.'s parade, and navy doe skin for more formal occasions.

This multi-coloured aura surrounding Station London may be described as the N.A.T.O. effect, a phenomenon that has already spread to many other R.C.A.F. training stations. Since the early autumn of 1950 selected cadets of the Air Forces of the North Atlantic Treaty Nations have streamed steadily across the Atlantic to undergo pilot or navigator training at schools of the Royal Canadian Air Force.

At the end of September, 1952, more than 700 aircrew from Britain, Italy, Belgium, France, Norway and the Netherlands were wearing the special R.C.A.F. pilot or navigator wings devised for N.A.T.O. graduates, while more than 1,200, including Danes, were under training.

To prepare for this training build-up and to meet Canada's commitment of a twelve-squadron air division for Europe, the R.C.A.F. has reopened a number of war-time air stations and accelerated its entire flying training programme. A second large air navigation school has been established at Winnipeg, Manitoba, and a number of British and Canadian cadets have already graduated.

In addition to Centralia, Ontario, where the first N.A.T.O. pilots were trained, pilot training schools have been opened at Gimli, Manitoba, Clareholm and Penhold in Alberta, and Moose Jaw in Saskatchewan. An advanced flying training school is located at Saskatoon, Saskatchewan, and another will be opened at Portage la Prairie, Manitoba, with a pilot gunnery school at MacDonald, Manitoba. Future plans call for the Gimli school to be converted into an advanced training school.

R.A.F. and Danish students do not at present go to advanced flying school in Canada, but do this training at home on their return. As soon as the Canadian schools are equipped with T-33 two-seater jet aircraft, however, it is intended that they also will undergo advanced training in Canada.

When the N.A.T.O. students arrive in Canada they go first to R.C.A.F. Station,

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[National Defence Photo

Members of the Italian Air Force who graduated on the first N.A.T.O. pilots wings parade, Centralia. Left to right: 2nd Lieuts. (All) P. Brazzola, E. Sciaretta, S. Orsi, B. Cottone, M. Quarentelli, F. Ferracina, C. Lo-Verde, S. Mascolo, P. Vernaleone

[National Defence Photo

Netherlands students who graduated on the first N.A.T.O. pilots wings parade, Centralia. Left to right: Cpl. W. Smit, Cpl. J. Van der Vlugt, Cpl. J. Van Nimwegen, Lieut. J. Spiegelenberg, Cpl. C. Donker, Cpl. J. Bellersen, Cpl. N. Fase, Cpl. J. Vlietstra

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[National Defence Photo

Sgt. P. F. Mayet, Bron (France), receives his wings from Air Marshal W. A. Curtis, C.A.S., during graduation ceremony for first N.A.T.O. pilots at Centralia. In background is C./Cpl. Michel Segala, Toulouse (France), right

London, Ontario, for an orientation course. As the name implies, the course is to provide a cushion that will reduce the shock of intensive aircrew training under conditions unfamiliar to the students from abroad. The prime concern during this adjustment period is to make the European visitors feel at home in their new surroundings. The course has four main aims:

(1) To introduce trainees to Canada and the R.C.A.F.

(2) To develop a vocabulary of essential aeronautical terms so that subsequent air and ground instruction may readily be understood.

(3) To develop a speech technique that will ensure that trainees are able to maintain effective radio communication while in flight.

(4) To develop a genuine N.A.T.O. spirit by promoting understanding and a sense of solidarity among the various national groups.

The growth of team spirit is fostered in many ways. Inter-flight sports and after-duty social activities are but two ways. One of the main achievements, despite a difficult accommodation problem, aggravated by separate arrival dates, has been the mixing of nationalities within the flights and also in the sleeping quarters. This dispersal is continued at flight school and offsets the natural tendency of the individual to seek companionship in his own national group.

Among the sports, soccer has undoubtedly been the chief common denominator linking the various groups together. Their love of the game is inveterate and all-embracing, and their clean, skilful play is a treat to watch. It is interesting to note that a cheering section at any game is liable to be comprised of five languages.

That the N.A.T.O. students have some dislikes of Canada is to be taken for granted. However, most of them centre around the food. They will tell you, with commendable restraint, that the food is good but that the preparation is—different. The Dutch object to "the food all mixed together on one plate," and the Italians deplore the lack of garnish and sauces in Canadian salads. Corn-on-the-cob is universally taboo, on the same grounds that Dr. Johnson rejected oatmeal porridge.

Understanding and tolerance on the part of instructors and students alike pave the way past the obstacles of language, rank and custom differences. Understanding and tolerance—two words that contain the hopes of all free peoples of the world. If N.A.T.O. training in Canada is indeed based upon those words then the future cannot help but be bright for united progress.

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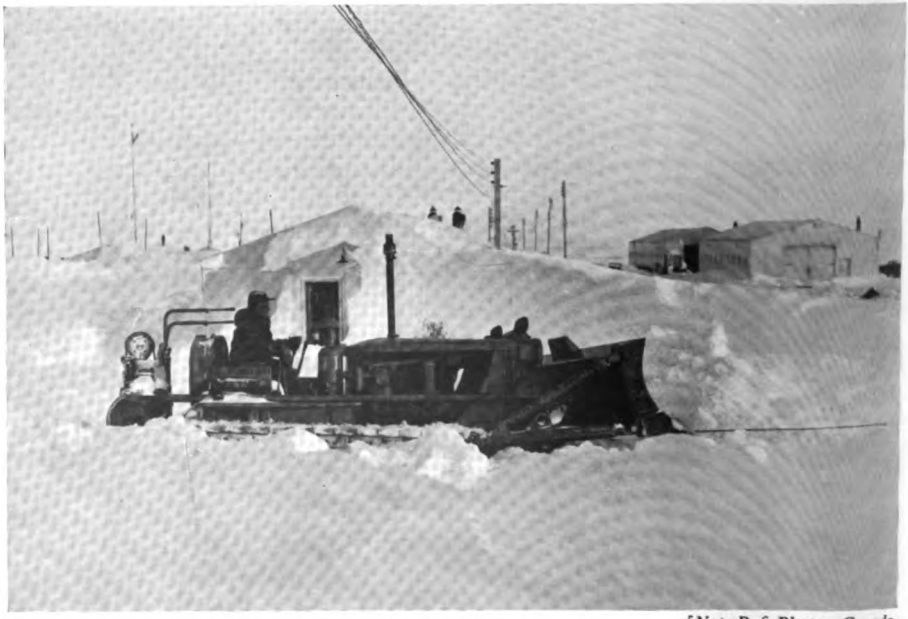
[Nat. Def. Photo: Canada

R.C.A.F. snowblowers removing snow from aircraft parking area at R.C.A.F. Detachment, Resolute Bay, Cornwallis Island, N.W.T.



[Nat. Def. Photo: Canada

L.A.C. R. L. Meloche, of River Canard, Ontario, opening roads with a bulldozer after an April blizzard. Barracks in the background were covered with huge drifts of snow at R.C.A.F. Detachment, Resolute Bay, Cornwallis Island, N.W.T.

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SERVICING AIRCRAFT IN ARCTIC CONDITIONS

By Wing Commander W. Skelding and Flight Lieutenant S. A. Marshall

"HELLO switchboard, give me the M.E. section, please."
"M.E. section, Johnson here."

"Good morning, Johnson, C Tech O speaking; how is the snow ploughing getting on?"

"Well, sir, we had a bit more trouble than usual getting the engines started, temperature dropped to 42 below by 3 a.m. when the ploughing was due to start. It was after 4 when the fourth plough was started by towing. However, the main runway, essential roads and taxi strips will be usable by 7.45."

This conversation would indicate that motorized equipment is more important on a Canadian airfield than the aircraft, and it is true, especially in the winter. For that reason, let us spend a moment looking at motor transport troubles in the Canadian winter, before talking about aeroplanes and their difficulties.

This article will ignore those fortunate R.C.A.F. stations which are situated in the "banana belt," i.e., on sea coasts and in Southern Ontario, even if those favoured with a comparatively moderate climate must prepare for emergencies of − 35° F. and a very heavy snow fall. People on airfields in Manitoba, Saskatchewan, Alberta, Yukon, etc., know that the temperature will drop to − 40 and colder several times in a winter, and that blizzards will beset them frequently.

In the R.C.A.F., standard motor transport preparations for winter include glycol/water coolant good for − 50° F., electrically heated frost shields on windshields and other windows, change to very light engine oil and chassis lubricants, etc. It may be necessary at times to keep an engine running twenty-four hours a day if there is no hangar or garage space. Wheel chains are carried by all sensible drivers because of the ever-present danger of sticking in soft (or hard) snow. It is necessary also, to insulate the cab to keep out those − 40 blasts that otherwise would freeze ankles and feet.

Development of aircraft servicing equipment suitable for cold weather has been going on for the past thirty years, almost entirely by local ingenuity and effort. Notable in this respect are serving tents and covers (shaped to fit individual aircraft), heated oil dispensers, sleds (sleighs in Canada) of various shapes and sizes to haul equipment and materials over ice and snow, and working clothing. Improvements are still being made, now along more scientific lines, but it can be said that not one item of winter equipment or clothing is fully satisfactory as yet. No description of cold weather servicing is complete without mention of the Herman Nelson combustion heater—the one indispensable piece of machinery. Providing one can start the small gasoline engine which powers this heater, a very satisfactory quantity of hot air is immediately available for heating aircraft or parts of aircraft, engines, tents, buildings, thawing out frozen pipes, melting ice in fuelling tenders, etc. This heater is small enough to push around on its wheels, and on a sleigh over ice and snow. One valuable use for the heater is keeping a fighter pilot from freezing while he is sitting in the cockpit on immediate readiness.

All this preamble brings us to the aeroplane itself. It seems obvious that an aeroplane intended for use in a cold climate, especially a military aeroplane, should be one that can be serviced and operated under conditions of very low

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temperature and in adverse conditions of wind and snow, without recourse to hangars or permanent shelters. This is a particularly exacting requirement for Canadian conditions, but is not impossible, as has been demonstrated by civilian operators for many years.

The first difficulty encountered is usually that of starting the engines. Until the late 1930's it was necessary during cold weather to drain the engine oil immediately after shut down, and keep it in a warm place. Pre-starting procedure then was to envelop the engine and propeller with a tent tailored to the installation, and heat the engine with a plumber's gasoline blow-torch (or several on very cold days). When the mechanic considered conditions right, the pilot jumped into the cockpit, the tent was pulled away, hot oil was poured into the tank and the engine was started, all in the fewest possible seconds. The take-off was commenced immediately, before the oil cooled. The hazards of this procedure are apparent as proven by the number of aircraft destroyed by fire. Often the insulation was burned off the ignition wiring. The writer was not sorry to witness the end of this period, although the memory persists of struggling in a 35 m.p.h. 30-below wind with tent, heavy oil cans, priming by turning over a heavy sluggish propeller, to the accompaniment of frozen nose, cheeks or fingers. In such cold, everything is against the worker; heavy clothing makes quick movement more difficult, requires deep breathing of frosty air with resultant tendency to freeze nostrils and lungs.

The introduction of the Worth Oil Dilution System was the dawn of a better day. All R.C.A.F. piston-powered aircraft for the past twelve years have been equipped for oil dilution, and it is compulsory to use it every day the aircraft flies, summer and winter, normally at the end of the day's flying. It is outside the scope of this article to say why this must be done in summer. The system includes a metering valve which permits gasoline to flow into the engine oil system at the will of the operator, and the diluted oil in circulation is kept segregated from the main oil supply. The effect is to coat moving parts with a very thin lubricating film which permits the engine to turn over more freely after standing out all night without protection. After starting the engine it may be necessary to apply more dilution until the main oil supply thaws out sufficiently to flow. The gasoline evaporates away in a short period of normal operation, and continual use of oil dilution does not reduce the overhaul life of the engine. Even this practice does not permit unheated starting in very low temperatures, but it does lessen the amount of heat (and work) required.

Some instruments are sensitive to low temperature, due often to the use of unsuited lubricants. In fact, a large proportion of cold weather research must be devoted to the development of lubricants and lubrication methods. Sealing glands, especially on the under-carriage and actuating jacks, often fail to perform their task when the temperature drops.

Disconcerting things happen to flying controls due to temperature changes. The aircraft structure contracts with the cold, causing looseness in the control cables, especially to the elevator and rudder. This requires constant inspection and attention by the mechanic concerned. One of the difficulties here is the great temperature variation that may occur in a matter of hours in Western and North-West Canada—sometimes as great as 80° F. This is due to the influence of the warm dry winds from the Pacific Ocean, known locally as Chinook Winds from the Indian tribe of that name.

Cold in itself is not the big impediment to Arctic or northern operations—but a combination of low temperatures, wind and precipitation. Thus it is that cold weather is frequently measured in degrees of "wind-chill."

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All Air Force Stations in Canada are equipped to handle snow fall so that it will not interfere with operations. This means that they are all equipped with snow removal machinery, and, if this machinery should fail, man-power is mobilized to move snow with shovels. Fortunately, in Canada, snow removal has been developed to an art, and it is the proud boast of all stations that a snowfall, no matter how heavy, never holds up operations. It is not an uncommon sight to see snow ploughs and blowers groaning on through the long cold nights. Snowfall is normally a gradual process, and removal is naturally in the same vein. Cold and snow can bring certain advantages such as providing a smooth and relatively soft landing-ground. In northern operations ski, wheel, and ski-wheel equipped aircraft land on frozen lakes and rivers and even on the barren Arctic ice-cap (as was recently illustrated by U.S.A.F. landings near the true North Pole). The R.C.A.F. regularly land transport aircraft in winter throughout the Arctic, with runways being rolled rather than ploughed. Fortunately, snowfall is not great throughout most of the Arctic and what there is generally packs tight and hard by the wind. It is at bases in the more temperate latitudes of the snow belt that drifts and snow banks often transform runways and taxi tracks into veritable tunnels.

Last, and certainly most important, we should consider the men who keep the aircraft going, and the personal problems which they must face in cold weather operations. Work in cold weather, particularly with temperatures lower than 20 degrees below (F.) while exposed to a wind, calls for special stamina and a knowledge of the effects of low temperature on humans. If any effort is to be sustained, energy must be conserved. Work must be carefully planned to this end. In operations in extreme conditions of cold, men normally will spend less time on the job and must consume more food, since so much energy must be expended just in keeping warm. Thus, it is usual for an Arctic winter workday to revolve around four substantial meals.

[*Nat. Def. Photo: Canada*

Digging out drums of aircraft fuel at a cache in the Arctic. Fuel for R.C.A.F. Arctic bases is supplied by ship or air during the summer months and is stored in 45-gallon steel drums

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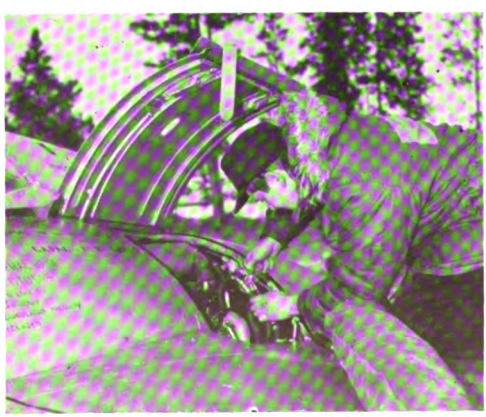
There has been much progress in clothing design and materials since the R.C.A.F. began Arctic operations in winter. For long it was felt that the only answer to keeping a man warm under such conditions was to emulate the Eskimo. And so, the R.C.A.F. experimented with caribou-skin, two-piece garments—one set worn with fur next to the skin, and in cold weather an outer garment with fur side out. The mukluk, the Eskimo snow-boot—soft and practical—was adopted. The problems of issuing caribou clothing to an air force are fairly obvious. Garments soon rot in warm climates of the south. In the north they need the careful attention of an Eskimo lady who will not only sew when needed, but chew the garments, and particularly the mukluks, when they become hard after being soaked in water. The supply problem also forced a search for a suitable substitute. The Eskimos have always had a difficult time of it keeping themselves well dressed in their hand-made clothes. For a modern air force this just would not do. And so our scientists got to work looking for a substitute for the atigi, and mukluks.

The problem is far from being solved, but the Eskimo now looks at our snugly clad airmen and they express great admiration for the white man's Arctic flying suits. After many innovations the researchers tried to simulate clothing along Eskimo lines. The same styles have been retained and the principles of insulation are fundamentally similar, although the new Arctic clothing is almost totally a product of artificial fabrics. Nylon "pile" has been the wonder material. It looks like fur—even, and close cropped. The demand of the Services was for a suit of clothing which would not be bulky, would be comfortable, and provide protection from the elements in temperatures down to – 60 and 70 degrees without discomfort. That is a tall order, almost an impossibility; however, there have been some practical solutions. The problem of bulk is one which the ground crew trades can fully appreciate, for you only have to imagine working with delicate tools on a sensitive aircraft component with temperatures around fifty below zero. Working with mitts or gloves of any kind is almost impossible when repairing or adjusting a radio set or instruments. Working without some protection from the cold is an impossibility. This is where the "Herman Nelson" portable gasoline heater comes into its own. A jet stream of hot air can be directed on to hands and working areas so that although the body shivers in 60 degrees below, hands, uncovered, work in the balmy breezes of "Herman."



[Nat. Def. Photo: Canada

L.A.C. J. Leeming, of Chatham, N.B., works in sub-zero weather with his gloves off. He is with 410 Squadron. To keep his hands from freezing, L.A.C. Leeming has directed a stream of hot air on to his hands from a Herman Nelson heater

Although development of R.C.A.F. operations in the far north were initially left to the ingenuity of the men concerned, now most of the advances in technique and equipment for cold weather operations come from the study of the R.C.A.F.'s Winter Experimental Establishment which has been organized for the sole purpose of developing and testing of all equipment for cold weather operations. In this effort the Royal Air Force, through the British Ministry of Supply, participates.

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CURRENT EVENTS

NAVAL OBSERVERS FOR N.A.T.O.

THE Royal Canadian Navy this month will assume a share of the training of aviators from North Atlantic Treaty nations now being carried out in Canada.

On 6th October ten midshipmen of the Royal Navy will begin training as naval air observers in the Observer School at H.M.C.S. Shearwater, the R.C.N. Air Station near Dartmouth, N.S. Their course will last approximately nine months.

A second course, in which trainees of both the Royal Navy and Royal Canadian Navy will be enrolled, will commence next February. The ultimate intention is to train from 30 to 40 naval air observers a year.

LABRADOR EXERCISE

R.C.A.F. maritime squadron Lancasters participated in Operation "Noramix II" during the latter months of 1952. About ten of the R.C.A.F.'s Lancasters supported a 34-ship U.S. amphibious task group landing to continue tests and evaluation of cold weather landing operations. The force landed on Labrador to retake a radar-radio and weather station established by invading "enemy" forces. They were subjected to "enemy" submarine attacks *en route*, as well as simulated opposition by "invader" ground forces on Labrador.

N.A.T.O. EXERCISE

Two Canadian warships and more than two dozen R.C.A.F. aircraft took part in a ten-day transatlantic N.A.T.O. exercise with ships and aircraft of the United States recently. Also taking part in the exercise, held under the direction of the Supreme Allied Commander Atlantic, were Shackleton aircraft of the R.A.F.'s 269 Squadron, which operated off Canadian territory.

Canadian ships taking part were the *Magnificent* and *Quebec*.

The exercise took the form of protection of a convoy under threat of attack by submarines and surface raiders. Flying from the *Magnificent* were Avenger anti-submarine aircraft and Sea Fury fighters of the 31st Carrier Air Group.

NEW APPOINTMENT FOR AIR VICE-MARSHAL JOHN L. PLANT, R.C.A.F.

Hitherto Assistant Chief of Staff, Logistics and Personnel at Headquarters, Allied Air Forces, Central Europe, Air Vice-Marshal John L. Plant, R.C.A.F., has now been appointed one of the three Major Deputies to the Commander-in-Chief (General Lauris Norstad). He will be responsible for logistics, and his Assistant Chief of Staff, Logistics, is Colonel Ephraim M. Hampton, U.S.A.F.

R.C.A.F. OFFICERS AND MEN TRAINING ON COMET JET AIRCRAFT

More than sixty R.C.A.F. officers and men recently proceeded to England to take extensive training on the British Comet jet-transport. The R.C.A.F.

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expects delivery of two of these 500-mile-an-hour transports early this year and this training will give the R.C.A.F. a pool of experienced air and ground crews to fly and maintain them.

Nine pilots, all senior Air Transport Command captains and veterans of the Korean Air-lift, are receiving ground and air training at the De Havilland manufacturing plant. Two navigators and two radio officers, all with air-lift experience, are also undergoing training at the Comet factory.

The pilots have all flown the Comet on familiarization flights between Britain and Singapore by agreement with the British Overseas Airways Corporation.

R.C.A.F. CHIEF FOR EUROPE

Air Vice-Marshal Hugh Lester Campbell, C.B.E., C.D., has been appointed Air Officer Commanding the R.C.A.F.'s Air Division Overseas. Air Commodore Keith L. Hodson, O.B.E., D.F.C., C.D., who has been serving as head of the Air Division planning team since January, will become Chief Staff Officer under Air Vice-Marshal Campbell.

THREE AIR ATTACHES

Three senior R.C.A.F. officers have taken up appointments as Air Attachés in Prague, Stockholm and Moscow. Group Captain Gordon Parker Dunlop, A.F.C., C.D., replaces Group Captain H. H. C. Rutledge, O.B.E., as Canadian Air Attaché in Stockholm, Sweden. Group Captain W. Gordon Welstead, A.F.C., takes over his new duties in Prague, Czechoslovakia, from Group Captain M. G. Doyle, and Wing Commander T. J. (Terry) Evans replaces Wing Commander W. M. Stephen, D.S.O., as Air Attaché to Moscow.

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ROYAL AUSTRALIAN AIR FORCE

THE WOOMERA* ROCKET RANGE

IN March, 1945, a party of British officials arrived in Australia to choose a site for a rocket range. The range required a strip of uninhabited country 3,000 miles long! This was the starting point of one of the great enterprises of modern times.

During the course of the last war it was becoming increasingly evident, especially to Germany, that some radical change to the accepted methods of anti-aircraft defence and long-range bombardment had to be brought about, in order to compete with Allied air superiority, and the increased performance, both in speed and altitude of modern aircraft. The anti-aircraft gun for high-altitude shooting was rapidly becoming obsolete, and large numbers of shells were being expended in order to shoot down a single aircraft.

In an endeavour to overcome this problem, rendered acute by the highly successful Allied bomber offensive, Germany turned a very large proportion of her immense scientific effort on to the production of high speed, pilotless guided anti-aircraft and ground bombardment weapons. In this work the German scientists were greatly assisted by having a considerable amount of knowledge already available on rocket propulsion, a field in which they had become pre-eminent before the war.

Towards the end of the war it was agreed that in spite of our complete air superiority, some effort should be devoted to research and development work on guided weapons, so that England should not lag behind in this new and very important field of defence. As a result of this decision, work was commenced in the Ministry of Supply late in 1944.

On the commencement of the work in England it became evident that to produce a reliable and efficient guided weapon, an enormous expenditure of money and correspondingly large effort in terms of manpower was involved. At this time very little was known either in England or America of the problems associated with controlling guided weapons flying at speeds greater than the speed of sound, and practically no work had been done on liquid fuelled rocket motors or ram jets necessary to obtain the required performance.

This position was improved somewhat when Germany surrendered, since access was then possible to the vast fund of knowledge which had been built up by Germany during the war. It was then that we became aware of the great advances made by the Germans, and of our very great lag in this field.

In addition to the many scientific problems presented in the actual production

* A short stick used by Australian aborigines for throwing spears.

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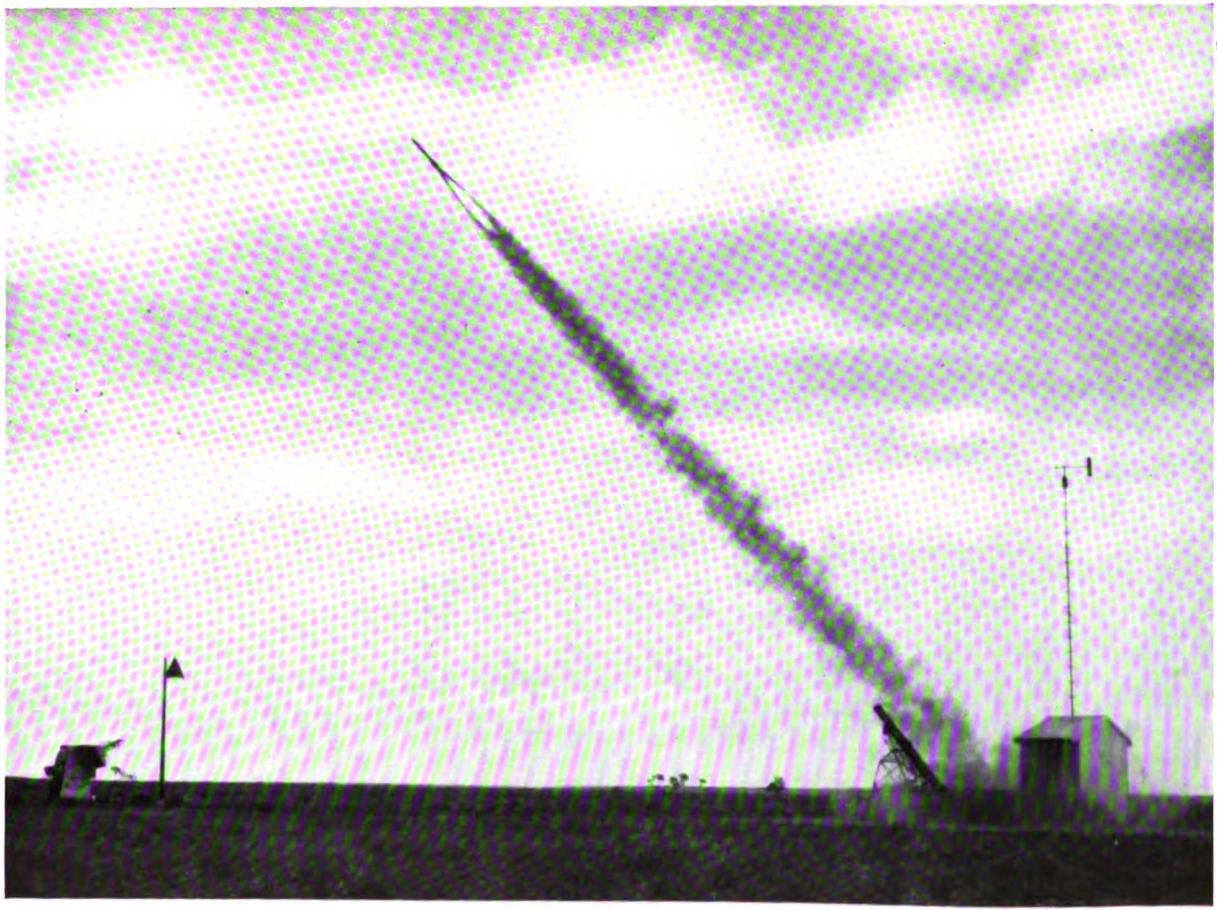

[L.R.W.E. Range Photo

ROCKET FIRING ON WOOMERA RANGE

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of the weapon and its associated equipment, a purely practical problem was presented by the lack of a suitable trial ground within the British Isles. The only available ranges were designed for gunnery, bombing and unguided rocket trials, and involved firing over the sea for strictly limited distances. Recovery appeared impracticable, and observation facilities were seriously limited.

To overcome this problem, the possibilities of other countries in the Empire were assessed with a view to finding a suitable area for constructing a range over land, with a future extension over the sea, to give a total length of about 3,000 miles. The only Dominions which showed any promise as a result of this assessment were Canada and Australia, the former having a big advantage in being relatively close to England, but a big disadvantage due to climatic conditions. Firing in Canada would inevitably have to take place over deep snow in winter, rendering observation hazardous and recovery extremely difficult, if not impossible. Australia seemed a better prospect.

And so the U.K. Mission arrived in Australia at Easter, 1945, in search of a suitable site for the new range. The Australians, having been given the U.K. specification, had been busy with a map of Australia and had marked on it a line from Lake Torrens to the North-West Coast near Port Hedland as the most likely area. When the British Mission arrived they produced a similar map with an almost identical line marked on it! Here was a basis for agreement from the start.

An expedition was then organized to examine the area. Two Dakotas, one carrying the personnel and the other loaded with three jeeps, set out for Mount Eba, an airfield at a sheep station homestead, and at that time a stopping-place on the north-south air line. On arrival, the party went in all directions. The Englishmen were keen to see the new country—"the Desert," as they called it, much to the annoyance of the local Station Manager, who runs about 20,000 sheep on Mount Eba Station.

The two R.A.A.F. representatives decided to take the opportunity to see the country further out by hitch-hiking with the mailman to Coober Pedy—an opal field 100 miles further inland. The mailman drove a 3-ton Chevrolet truck loaded with everything from mail to barbed wire, and the story of this expedition alone would fill a small book. It ended in the two R.A.A.F. officers and the mailman—a hunch-backed Dutchman—sleeping beside the disabled truck for two nights, fifty miles from anywhere; and the mailman carried no emergency rations! On any other occasion the party would have been rescued much earlier by the local station people. However, the British Mission had chosen to go to the bush during Easter because all offices were closed in the city. In the bush, however, Easter is the occasion for the annual race meeting, and all the station people were at Kingoonya for the week-end—100 miles from home!

An event which will always remain in the memory of the expedition was the photographing of a camel buggy by several of the party. While several of the Englishmen were examining various interesting features of the country, there appeared round a bend in the track a very ramshackle buggy drawn by two camels and carrying an aborigine, his wife and several children. The ensemble, with dogs running underneath, excited the photographers considerably.

They were just getting themselves nicely in position to take a photo when the aborigine addressed them, in good English, as follows: "I think, gentlemen, you would get a better picture if you stood over there with your back to the light!"

The outcome of the visit by the Mission was general agreement that Australia offered the best prospect for a rocket range, and that Mount Eba would be the

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main base. A railway line was to be built from Kingoonya on the east-west railway line, and an active programme of boring for water was to be instituted.

The Headquarters of the project was to be Salisbury, near Adelaide, where a complete explosives factory had been built by the Government during the war at a cost of about eight million pounds.

This factory offered unparalleled facilities for Headquarters, laboratories and workshops, and was about to be hired to local industry as the government had no immediate use for it. It covered about six square miles of country, and in the outcome has proved to be a priceless asset to the project.

On his return to England, Lieutenant-General Evetts reported to the British Ministry of Supply on the possibilities of the area, and negotiations were commenced between the British and Australian Governments early in 1946. At the same time, work was commenced in various Ministry of Supply Establishments, planning the technical aspect of the proposed range, assessing the requirements and estimating the cost of the project.

The proposed range was to run from Eba for a distance of about 1,200 miles, with the possibility of a future extension of about 1,500 miles across the Indian Ocean towards Christmas Island. The advantages of the area were immediately apparent. It is virtually uninhabited, so that little if any risk to life would be incurred; the climate, though very hot during the summer months, is good during the remainder of the year. The visibility, with the exception of ground heat haze, is good, recovery of expended rounds presents no insuperable problem, and the setting out of observational facilities and general range instrumentation is relatively simple.

The disadvantages of the area are, in the main, those which would inevitably be associated with the setting up of any large project in a virtually uninhabited region. These are, broadly, lack of water, poor communications and general absence of essential facilities and amenities; but none of these problems are insuperable and all are being dealt with satisfactorily.

Early in 1946 General Evetts returned to Australia with a small group of Service officers and a party of scientists headed by Mr. A. P. Rowe, of T.R.E. and radar fame. General Evetts established his headquarters in Melbourne, while Mr. Rowe became the head of the range proper at Salisbury. Since that time the enterprise has gathered momentum until it is now a going concern and capable of testing the most elaborate devices.

The problems encountered in the building of the enterprise ranged over the whole gamut of human interests. There was no question of building a range to a specification; no precedent existed, and it was necessary to make up specifications as the job progressed. There was no question of installing equipment to test rocket firings. No such equipment existed, and it had to be developed as the need arose. The building of the range itself was perhaps the least of the problems. Situated as it is, 300 miles from Adelaide and 100 miles from the nearest town, no local amenities of any kind could be depended upon; as it was to employ people of first-class intellectual attainments, it was essential that first-class facilities be provided.

The problem involved a range, unprecedented in size and complication, a village to house several hundred families, a water supply, an air establishment, a railway line, and all the multitudinous associated details.

With the establishment of a construction authority, thought was given to the problems associated with Mount Eba. A railway line 60 miles long, and a pipe line for water supply 200 miles long presented a formidable task in themselves.

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It was decided that Pimba, 100 miles nearer civilization, would be a more acceptable site, and a railway only 10 miles long would be needed.

At the same time, it became necessary to give the new enterprise a name. After many suggestions and much thought, the name Woomera was chosen. A Woomera is a short stick used by the aborigines for throwing spears. It is a launching device, and the name is therefore singularly appropriate.

In the subsequent development of the project the influence of air transport and aircraft in general stands out above most other things. The first step was to provide data about the area in the form of maps. A Lincoln was used to take an overlapping set of trimetragon photographs from Eba to the coast. This naturally presented quite a problem in navigation as the aircraft was required to do three runs, one on the centre line and two others, 20 miles each side. Needless to say, the resulting tracks were not parallel all the way, but the information produced was invaluable.

At the same time, the R.A.A.F. Survey Squadron, which is engaged in the photographic survey of the whole of Australia, was instructed to concentrate on the area around Eba and beyond, so that suitable maps could be made.

When finally a site was chosen for the new enterprise, it became essential that air transport should be available as early as possible. The Government instructed the R.A.A.F. to provide an Airfield Construction Squadron to build an airfield, and No. 2 A.C.S., who had built many airfields in the Pacific, was allotted to the task. Their advance party arrived at Woomera in June, 1946, and two weeks later a new era was inaugurated with the landing of a Dakota on the first temporary strip.

From this date things progressed by leaps and bounds. A regular R.A.A.F. courier service was inaugurated and this provided food and all manner of supplies to the people who were building the range. An army administrative unit was established to look after domestic affairs, and very soon a naval detachment arrived, thus completing the integration of the three Services and civilians.

In Melbourne a Long Range Weapons Board of Administration had been set up, with members drawn from the three Services, Treasury, Defence, Department of Supply, Department of Works & Housing, and the U.K. General Evetts was the executive officer. In Adelaide the headquarters was known as Long Range Weapons Base Establishment, and there much of the planning was done. The air establishment to support the project was set up at Mallala, a war-time training station about 40 miles north of Adelaide, and it was equipped initially with Dakotas, Ansons and Austers on loan from the R.A.A.F.

One of the first problems in planning was the procurement of an adequate water supply. Although Woomera is on the edge of the artesian basin, most of the water found in the area is salt. A boring programme failed to find useful quantities of fresh water, and it was finally decided to build a pipe line from Port Augusta, tapping off an existing line laid from Morgan on the Murray to Whyalla, and installed to feed the iron ore industry. A ten-inch pipe line was started at Port Augusta and in a remarkably short time water was flowing out of the end of the line at Woomera. Another milestone had been passed.

Coming as it did at the end of the war, when building materials were very scarce, Woomera presented unique problems in construction. Advantage was taken of the very large Army and Air Force camps which were becoming vacant to establish a set of temporary houses and single men's quarters, pending the construction of permanent accommodation. Success was achieved in converting corrugated iron huts into two and three bedroom houses. Families who came to live in them pronounced them very comfortable indeed.

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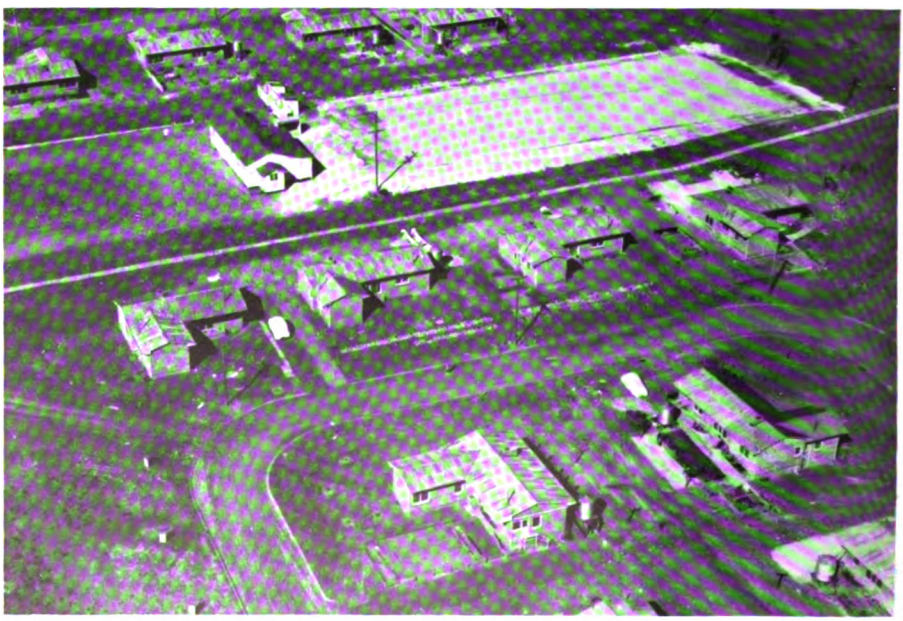
[L.R.W.E. Range Photo

Woomera Village, showing general layout



[L.R.W.E. Range Photo

Woomera Village, showing tennis courts and brick houses

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In the meantime, plans were in hand to build permanent houses in brick. The first problem was to get materials and this was solved by the discovery of suitable sand deposits from which cement bricks could be made. To date, five million bricks have been turned out. Contracts were also let for prefabricated houses in aluminium and wood, and the final village will have five different types of house, the brick ones being probably the most suited to the area.

Plans for the village include all the usual amenities, such as swimming pool, tennis courts, bowling greens, sports ovals, etc. A theatre is planned, and a large community store is being built.

Woomera village is an interesting case of a community built up on the socialist scheme. The Government owns the land and all buildings, and it rents houses to the occupants. Everything is done with the consent of the Government, and it will be very interesting indeed to watch the development of community life.

The range is controlled by a Superintendent, and to relieve him of the details of village administration a Village Board has been created. The Board is headed by a chairman, who is appointed by the Government, and it comprises three members also appointed by the Government, and three elected by the community. It is charged with responsibility of all community affairs, and the Superintendent has the power of veto over it. In particular, the Board will be responsible for the operation of the community store which will provide for the needs of the villagers.

Being so far from other centres of civilization, Woomera depends almost entirely on its own resources for entertainments. Thriving sporting clubs exist, including football, cricket and baseball, while groups can be found who are patrons of all manner of community interests from debating to soccer. The better established sports send teams to play other South Australian clubs, and this practice will increase as time goes on and the village increases in size.

As has already been explained, the country in which the range is located, though arid, is not desert. The average rainfall is 6 inches per year. In the area occupied by the range, over 250,000 sheep are grazed, and naturally some concern was felt when it was rumoured that the government intended to acquire the land and oust the sheep people. At an early stage a very wise decision was made, however, when it was agreed that the range would operate with a minimum of inconvenience to the land holders. To this end the R.A.A.F. supplied a pilot who had had considerable agricultural experience, to watch the interests of the pastoralists. He was stationed at Woomera as "Range Overseer" and has proved a great asset in smoothing out difficulties. All the station homesteads have their own airfields, most of which have been developed in connection with the flying doctor service. By using the Auster, the Range Overseer keeps in close touch with the pastoralists, and attends to such matters as broken fences, travelling stock, access to water supplies, and evacuation of specific areas. By gaining the confidence of the pastoralists, the Range Overseer has simplified a problem which could have been most difficult.

Perhaps the greatest feature of the range is recovery of spent missiles. Operating over land for the first 1,200 miles means that every missile fired within this range is accessible to surface transport, with the result that missiles or parts of them may be retrieved for inspection almost immediately after firing. Owing to the inhospitable nature of some of the country, however, it is likely that the helicopter will play a major part in recovery operations in future.

Instrumentation on the range utilizes many varied techniques, and includes radio and optical methods, amongst which is the use of Kine Theodolites and high-speed cameras. Kine Theodolites are manually operated and produce a

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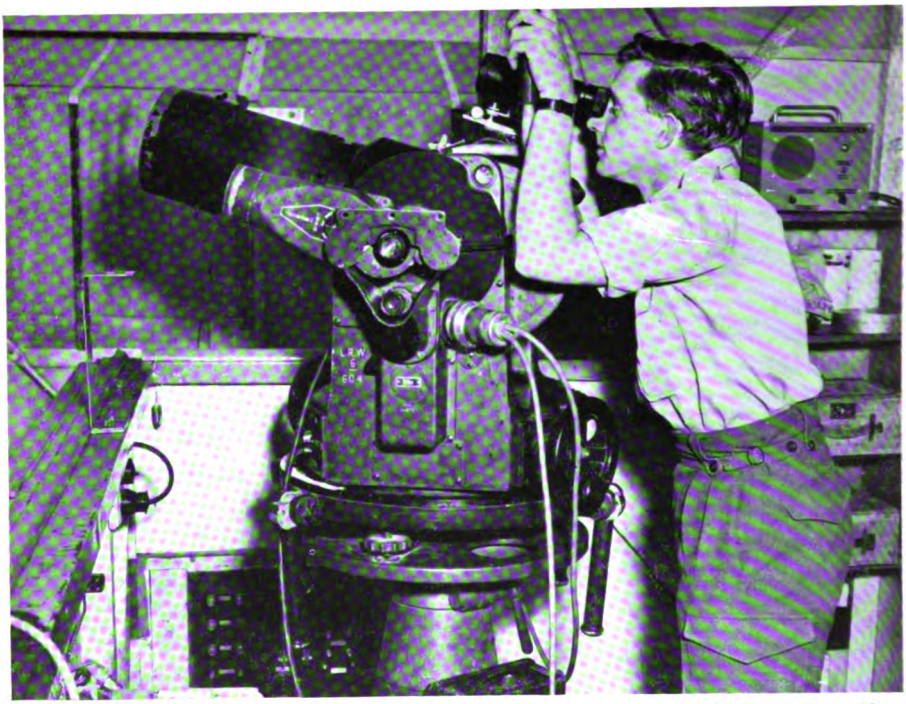
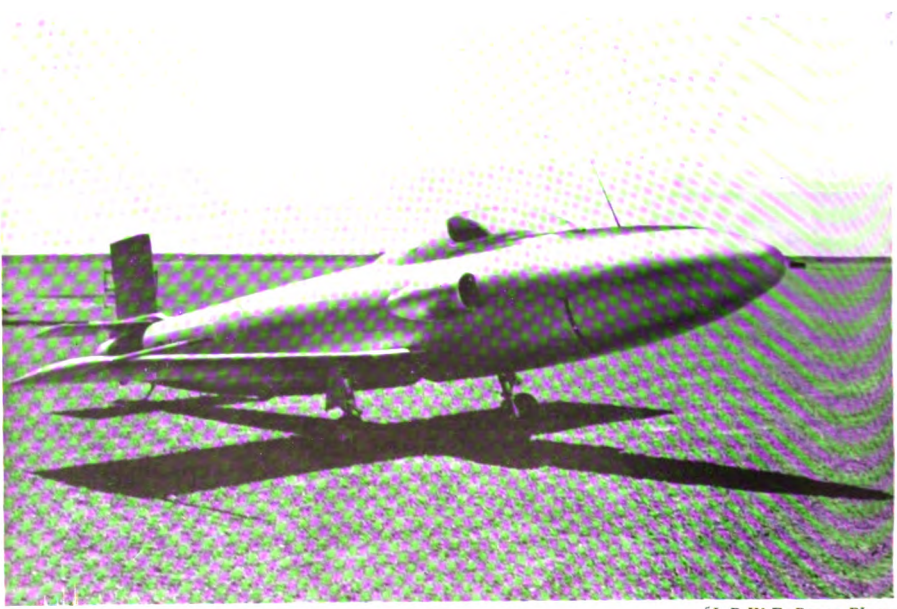


[L.R.W.E. Range Photo

Kine Theodolite in operation



[L.R.W.E. Range Photo

Target Aircraft

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continuous record of the missile upon which is also recorded azimuth and elevation scales. High-speed cameras are usually manually operated and controlled from a central timing unit.

One of the projects which has already had considerable publicity is the pilotless target aircraft. Designed in Melbourne, this aircraft first flew at Woomera in late 1950, and it has since undergone a series of trials and tests which aim at rendering it fully controllable from the ground by radio. At that stage, the pilot will be removed, and the aircraft will then be flown without a pilot. In its early trials, the aircraft has proved most satisfactory and it seems likely to become a very successful product of local development.

Woomera is well supplied with communications to the outside world. Being on the trans-continental railway line, the main line trains pass the door daily, while recently the Commonwealth Railways have instituted a diesel rail car service between Pimba and Port Pirie, which has reduced the running time to just under four hours, with a further four hours to Adelaide.

The road from Woomera to Port Augusta is unsealed, but quite good in dry weather. In wet weather, however, it becomes impassable. A civil air service operated by Guinea Airways connects Woomera with Adelaide thrice weekly, and completes the list of public transport. In addition to this, however, the R.A.A.F. operates the L.R.W. Air Component at Mallala, and provides a daily courier service between Adelaide airport and Woomera. Bristol freighters are used for this purpose and have proved ideally suited to the job. They are convertible from all-freight to all-passengers, with two intermediate proportions of passengers to freight. As they are required to transport passengers together with varying loads of stores which vary from frozen meat to rockets, their versatility makes them an ideal aircraft for the purpose.

For purely passenger runs and special duties, several Percival Princes are about to be delivered, and these two types in conjunction will provide a most flexible air transport system. This system is coupled with a direct courier service between U.K. and Australia, and a highly satisfactory system of air transport will be available.

The magnitude of the project is such that no story of this kind can do it justice. Only a very rough estimate can be formed by the reader. One thing, however, seems to stand out. Whatever war weapons or techniques are developed at Woomera, the general trend of development points inevitably to the development of systems for inter-continental, and eventually, inter-planetary travel; such systems will probably be the eventual outcome of this great enterprise.

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[R.A.A.F. Official Photograph

The physics laboratory at R.A.A.F. College, Point Cook, is where the cadets are given a great deal of practical training. They complete periods in this laboratory during both their academic and service training period

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THE ROYAL AUSTRALIAN AIR FORCE COLLEGE

THE Royal Australian Air Force College was formed in 1947 at Point Cook about 20 miles from Melbourne. Point Cook was the first R.A.A.F. Station formed in 1921—in fact it was the first Australian Military flying station, from 1913. The cadets, therefore, are trained in the very home of Australian aviation.

The College was opened in February, 1948, the first course graduating in December, 1951. Some officers from this course are already flying in Korea.

The aim of the College is to train cadets so that, at the conclusion of the four-year course, they possess those qualities and qualifications necessary to fit them for careers as permanent officers in the General Duties Branch of the Royal Australian Air Force. College graduates are the principal source of officers who, in the future, will fill the higher appointments in the Service.

Applicants for entry to the College are required to be physically fit, to be between the ages of 16 years and 19 years at the date of entry, and to have passed the matriculation examination of an Australian University, or be currently taking a course in preparation for it, with English, physics and two branches of mathematics as pre-requisite subjects. However, consideration may be given to applicants of superior ability whose standard of achievement is one year below this, or to those who have reached matriculation standard in other than mathematical and scientific subjects.

The College is organized on the basis of three squadrons—Flying Training Squadron, Ground Training Squadron and Cadet Squadron—and a Directorate of Studies, and is commanded by a Commandant. The first Commandant was Air Commodore V. E. Hancock, O.B.E., D.F.C., now Deputy Chief of the Air Staff. The present Commandant is Air Commodore A. M. Murdoch, C.B.E.

The three squadrons are under the direct control of the Deputy Commandant, who is also the Chief Instructor. They function as follows:

(*a*) *Flying Training Squadron*, under the command of the Chief Flying Instructor, is divided into two flights. "X" Flight uses Tiger Moth aircraft and commences flying training in the middle of the cadet's third year, providing him with about sixty hours' instruction in the fundamentals of flying. "Y" Flight is equipped with Wirraway aircraft, which are used in the fourth year of the course for training in the applied aspects of flying, such as gunnery, dive-bombing and photography.

(*b*) *Cadet Squadron.* For disciplinary purposes and service training cadets are allocated to this squadron, which comprises three flights. Here the cadet learns what is expected of him as a future officer. The Officer Commanding Cadet Squadron supervises closely the progress of each cadet and is responsible for the all-important leadership training.

(*c*) *Ground Training Squadron* is commanded by the Chief Ground Instructor who is responsible for co-ordination of all aspects of Service ground training and is assisted by specialist officer instructors in such subjects as navigation, weapons and engineering.

The Director of Studies is the personal adviser to the Commandant on all matters relating to education. He has a staff of civilian officers of the Commonwealth Public Service, who are University graduates with post-graduate training in education. This staff has the responsibility for providing the broad educational foundation in the humanities and in mathematical and scientific subjects.

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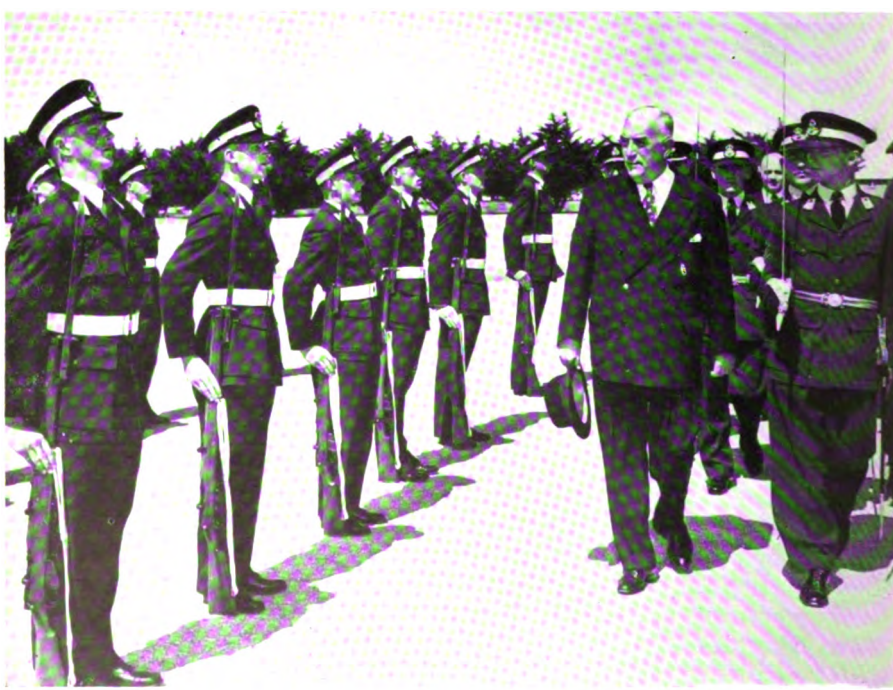
[R.A.A.F. Official Photo

In their new workshops at Point Cook, the R.A.A.F. Cadets are taught how to service aeroplanes. These cadets are undergoing practical training in the repair and maintenance of an aircraft engine



[R.A.A.F. Official Photo

The Prime Minister, The Hon. R. G. Menzies, attended the first Graduation Parade of cadets from the R.A.A.F. College, Point Cook. He is shown here inspecting the cadets on parade

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[R.A.A.F. Official Photo

A graduate of the 1st Course undergoing a fighter-conversion course, climbs into a "Mustang"

Every effort is made to ensure that there is a smooth transition from the more academic subjects of the first two years of the course to the applied Service subjects of the later years. To this end members of the Directorate of Studies and the Ground Training Squadron function as an integrated team, and the Director of Studies is responsible to the Commandant for standards achieved and instructional technique in all subjects of the ground training syllabus.

The course of training aims at providing a balanced education, with emphasis on scientific and technical subjects. The increasing importance of the applications of science and technology to warfare requires the closest possible liaison between science, industry and the Services. The cadet at graduation should have a sound appreciation of scientific principles and their application to the life of the community, as well as to warfare.

During the first two years the curriculum aims at consolidating and extending the knowledge of cadets in English, mathematics, physics and chemistry, as well as providing basic instruction in some service studies. Emphasis is placed on scientific method, its uses and limitations; and the attitude of actively searching for information rather than passively accepting facts is encouraged. The standard reached by cadets in mathematics and science at the end of the second year is approximately that of the first year of a University Engineering Course.

At the beginning of the third year the study of subjects more closely related to traditional R.A.A.F. flying training course commences. The cadets enter upon subjects such as aerodynamics, navigation, airmanship and armament, which are closely related to flying. The study of English continues, and psychology, with emphasis on teaching technique and problems of military leadership is introduced.

The subjects of English, psychology, and the historical, geographic and economic content of Air Power Studies provide the contribution of the humanities to the curriculum. Every effort is being made to develop in cadets the ability to express themselves with simplicity, logic and conviction, both orally and in writing; to introduce them to the major forms of prose literature, and to writers important in the development of Western civilization.

The subject of Air Power Studies represents an integrated course in economic and strategic geography, history of war, international relations, national organization for war, and the potentialities and limitations of air power. Here again, rather than present the information directly, the student is given the problem and then required to seek out his own solution from the well-stocked College Library. This technique involves the cadet in considerable research in the field

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under discussion and provides him with an opportunity for offering his opinion during the debates and syndicate exercises which climax each particular phase.

Temporary war-time buildings which have been adapted for instructional use have proved quite suitable. They are compactly grouped, with resultant economy in administration and avoidance of time lost in movement of classes. Well-equipped laboratories and lecture rooms have been established for the teaching of physics, chemistry, aerodynamics, electronics and navigation. Workshop accommodation for practical work in the use of hand and machine tools, aircraft engines, airframes and an armament has been provided in a hangar modified for instructional use.

The course of flying training begins in mid-year in the Second Class—that is two years after entry. Divided into two phases, the flying course is crowned by a further operational training course, lasting one month.

In the first phase, which is the Tiger Moth phase, the pure technique of flying is taught. At the end of this basic stage the cadet has reached a standard of flying whereby he is master of his aircraft. He is then taught to use the aircraft as a weapon in the second or applied phase of instruction in Wirraways. This phase includes air practices and tests in navigation, air-to-air gunnery exercises, the use of the camera-gun, dive-bombing, instrument flying, night flying, and formation flying. This applied phase occupies about one-third of the entire flying course, two-thirds of which are flown solo. Finally, a few weeks before graduation, the cadet attends an operational flying camp at some distant and unfamiliar aerodrome. There, under field conditions, he carries out advanced air and ground training exercises.

The College year begins with the annual field camp, which is held at Waratah Bay, near Wilson's Promontory, Victoria. At the end of the Christmas vacation all cadets, including new entry junior class cadets, go to Waratah Bay for a fortnight's extensive programme of arms training and fieldcraft. The cadet learns to handle and fire a number of small arms, including the Thompson sub-machine gun, .303 rifle, and .45 and .38 revolvers. Route marches over difficult terrain are organized, and the senior class cadets participate in an escape exercise which involves them in a walk of approximately 100 miles, at the same time evading capture by the police and living off the land.

Sport is considered to be of the utmost importance in developing the cadet, both mentally and physically and in fostering fair play and team spirit. It is equally important to be able to organize sport as to possess the ability to play it. Consequently the cadet not

[*R.A.A.F. Official Photo*

Cadet under instruction on the use of the Thompson sub-machine gun

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only plays in competitive sport but shares in the organization. The playing fields of Point Cook, therefore, play an important part in the training of an air cadet.

Sports played include rugby, Australian Rules football, hockey, cricket, tennis, basket-ball and golf; whilst swimming, athletic and boxing competitions are vigorously contested. College teams participate in regular contests with sporting organizations, schools and other Service colleges.

Cultural activities have an important place as a counter to a curriculum which has a large technical content, to ensure that cadets develop a range of interests and do not lose touch with the civilian community.

To provide an outlet for a cadet's personal enthusiasms, hobbies are encouraged, photography is popular; but model aircraft construction claims most interest. A radio-controlled, powered model aircraft has already been constructed and flown, and others are on the way. A ham radio club has been formed and contact established with other enthusiasts all over the country, through the medium of an amateur radio station, VK3ARC.

The College play is an annual event and cadets are encouraged to participate. The magazine is produced each year and is a vehicle for recording major activities (particularly sporting) throughout the year. This magazine has a wide circulation, even as far as the United Kingdom, Pakistan and South Africa.

During inter-term breaks the cadet is provided with an opportunity of seeing as much of Australia as possible, and also of studying its industrial capacity. In May, first-year cadets ride bicycles to Ballarat and back; in September a ski-ing holiday is organized to Mount Buller, for which the cadets make their own skis. Second-year cadets construct their own canoes and paddle 100 miles down the Goulburn during May, whilst in September they are flown round Australia via Alice Springs, Darwin, Townsville and Sydney in R.A.A.F. Dakotas. Third- and fourth-year visit industrial centres at Wonthaggi, Melbourne and Newcastle, the climax being a visit to the Long Range Weapons Establishment in the fourth year.

After one year at College, cadets destined for entry into the Technical Branch of the Royal Australian Air Force are selected for training at an Australian University. The University courses currently used are aeronautical engineering at the University of Sydney, and electrical engineering at the University of Adelaide. During University vacations these cadets return to the College for flying training. At the end of the third University year they are commissioned with their contemporaries who are entering the General Duties Branch, and then return to the Universities to complete their degree courses. Under this scheme, cadets training for the Technical Branch participate with General Duties cadets in a measure of common background and experience which must tend to broaden the mental horizons of all, and which promotes an appreciation and understanding of the problems of the two branches.

This year two cadets of the Royal Pakistan Air Force, and two from the Royal New Zealand Air Force, have entered the College for the four-year course of training. They have settled into the new environment very well and have made many friends. By their ready co-operation and enthusiasm they have contributed much to the life of the College. Cadets from these two dominions will be entering the College each year and will help to foster closer co-operation in the future between Air Forces of the three countries.

Cadets who passed out of the R.A.A.F. College in December, 1952, are already serving with No. 77 Squadron (Meteors) in Korea and with No. 1 Squadron (Lincolns) in Malaya. Two graduates have been lost in Korean operations, one being the Dux of the College.

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CURRENT EVENTS

R.A.A.F.'s KOREAN RECORD

RETURNING to its role of making fighter sweeps, No. 77 Squadron in Korea has broken its own record for the number of sorties flown in one day. Starting at dawn and finishing after dusk the small Australian unit flew eighty sorties.

For the size of the unit the day's work was one of intense effort made possible through the co-operation of ground staff and maintenance crews, as well as the pilots.

It is believed that the record is also one for any jet fighter aircraft unit of similar size operating in Korea. The last flight to set the record was led by a Royal Air Force pilot (Flying Officer Martin Chandler). The record was the culmination of a week of intensive flying by the squadron.

D.F.C. FOR R.A.A.F. PILOT IN KOREA

The Minister for Air, Mr. William McMahon, has announced that Flight Lieutenant Edgar Weslie Guy has been granted the immediate award of the Distinguished Flying Cross for operational service with No. 77 Squadron in Korea.

SUPERSONIC PLANE DESIGNED IN AUSTRALIA

Australia has designed its own faster-than-sound jet aircraft, the Chief of the Air Staff, Air Marshal Sir Donald Hardman, has announced.

The plane—with two jet engines and a swept-back design—was designed at the Commonwealth Aeronautical Research Laboratories.

He said that for the next two to five years the Royal Australian Air Force would have as its first-line aircraft the Canberra jet bomber and an improved version of the American Sabre jet fighter.

Both would be entirely manufactured in Australia. Production of both had already begun.

A prototype of the Australian Sabre should be in the air next March, he declared, and the first all-Australian-made Canberra should be completed in January.

Plans had been drawn up for 100 new giant jet airstrips, including strips at Darwin, Townsville, Amberley, Perth, Adelaide and Williamtown.

Work would go ahead as funds were allocated.

JET TRAINER FOR R.A.A.F.

The delivery of the first of several D.H.115 jet trainers, made by de Havilland's in Sydney, was expected in December last, enabling pilots to be converted more efficiently and in less flying hours. It is similar in appearance to the Vampire jet fighter.

STRENGTH OF DEFENCE FORCES

Australia expects to have its armed forces up to strength by the end of 1953.

The Army will then have 33,000 men and the Navy and Air Force 17,000 each.

These figures represent only the permanent establishment.

Each Service has a volunteer reserve approximately equal to the full-time Regular Service.

In addition, there is a National Service Plan which trains 30,000 men each year to prepare them for integration into the Regular Services on short notice.

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R.A.A.F. COLLEGE GRADUATE FLIES 100 MISSIONS IN KOREA

Pilot Officer "Bill" Hughes, first of the R.A.A.F. College graduates now flying with No. 77 Squadron in Korea, has reached his century of jet operational missions.

Pilot Officer Hughes joined the unit in Korea last May and has taken part in rocket and strafing attacks on enemy positions and installations as well as fighter sweeps and escort patrols. His 100th mission was flown while escorting American light bombers attacking railway installations west of Wonsan.

Other former cadets of the R.A.A.F. College who were the first course to graduate expect to achieve their hundred missions within the next few days. These Officer Pilots have already brought great credit on their training. Pilot Officer Bill Simmonds shot down an enemy jet MIG fighter shortly after joining the Squadron.

No. 78 WING PILOTS SEE OTHER SIDE OF FIGHTER ATTACK

Australian fighter pilots of No. 78 Wing in Malta have taken turns flying as passengers in R.A.F. Lancasters which were carrying out fighter affiliation exercises with Vampires flown by other R.A.A.F. pilots.

Each pilot was anxious to see a fighter attack from the inside looking out, instead of outside looking in. They expect to get a new slant on fighter attacks and bomber manœuvres.

ENGLAND—CHRISTCHURCH 1953 AIR RACE

The Minister for Air (Mr. William McMahon) this week confirmed the fact that a R.A.A.F. Australian-built twin-engine Mosquito bomber would fly in the England—Christchurch 1953 Air Race.

The plane would be flown by two R.A.A.F. Reserve pilots—Aubrey John Oates, of Campbelltown, New South Wales, and Douglas Hereward Swain, of Camden, New South Wales.

SWEDISH AIR FORCE GENERAL VISITS R.A.A.F. IN MALTA

General Ramstion, one of the "Big Three" officers of the Swedish Air Force, was more anxious to talk to R.A.A.F. fighter pilots than he was to attend official functions when he paid a one-day visit to Malta. Almost as soon as he had been officially welcomed to the island, the Swedish Air General asked to be taken to meet pilots of No. 78 Wing who flew in Korea with No. 77 Squadron. He said he had heard about No. 77 Squadron's exploits and wanted to get latest information about modern aerial warfare from all flyers from Korea, especially those who clashed with MIG-15's.

The General, who directs all training in the Swedish Air Force, said the S.A.F. is the "greatest air power apart from Russia, U.S.A. and R.A.F." He said he would like to get all the information on tactics and manœuvres from young pilots fresh from action. As Sweden was neutral he found it difficult to meet such clued pilots as R.A.A.F. men from Korea.

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Snow-covered mountains of Northern Korea, where the terrain is very rugged

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SOUTH AFRICAN AIR FORCE

KOREA

THE COUNTRY IN WHICH WE FIGHT

By Captain M. J. Uys, A.F.C., S.A.A.F.

ON my return to South Africa after having served in Korea with the famous No. 2 Squadron of the South African Air Force, I was most surprised to find that the public in general knew very little of the country and the people their relatives are fighting in.

Korea is a peninsula projecting southward from the Asiatic mainland, for a distance of approximately 500 miles. It is bounded by the sea of Japan on the east and the Yellow Sea on the west. The Tuman and Yalu rivers form the northern and international boundary between Northern Korea and Manchuria, and the lowest ten miles of the Tuman river border the U.S.S.R.

The peninsula is a major mountain mass with peaks exceeding 8,000 feet in height. The eastern part of Korea consists of steep, peaked mountains, drained by short, shallow swift rivers. The north central part is composed of extremely high and rugged mountains and has one of the few large stands of untouched forests on the peninsula. The western part is characterised by lowlands and low rolling hills, which spurs off the central mountain ranges. Most of the lowland areas of the Korean peninsula lie south of the 38th parallel, and the north has traditionally been dependent on the south as a source of food. The east coast is relatively regular, and is composed of a series of short disconnected alluvial lowlands and river plains separated by hills and steep cliffed headlands. The west coast is extremely irregular, consisting of innumerable bays and peninsulas, and is flanked by numerous islands and shoals. This area is subject to one of the highest tidal waves in the world. The majority of roads lead along the valleys between the high ranges of mountains.

Korea has a severe, continental-type climate, very cold in winter and very hot in summer. In general the year is divided into a wet season from April through September, and a dry season from October through March. From 80 to 85 per cent. of the yearly rainfall occurs in the wet season, and only 15 to 20 per cent. in the dry season. August is the wettest month, with a normal rainfall of six to eight inches. Thunderstorms and typhoons are frequent in Korea, and the months of December and January are prominent for severe snowstorms, which on occasions keep the Korean landscape covered in a sheet of white for weeks.

Rice is the major cereal crop and also the principal food item in both North and South Korea, and over a third of the total crop acreage is devoted to it.

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Typical Korean home

Small islands and beautiful sea inlets form picturesque scenes along the coast

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Legumes, particularly soya beans, make up about 14 per cent. of the planted acreage, while vegetable crops account for 6 per cent.

The Korean people live in the glories of the past. They cannot forget the 4,000 years behind them as a nation, years of unbroken culture. We meet in the average Korean, a man who is proud, strongly nationalistic, and more than a little cautious of any changes. To understand the Korean, one must first admit that these qualities are present in him. The Korean is an interesting person, a make up of the shrewdest individual, frank and most evasive, one of the slowest, but most alert. His living in poverty has given him a resourcefulness that cannot be matched by many other people, and his centuries of suffering have given him the ability to "take it." He does not like to be sold short and there is no reason why he should be. He represents a nation which is now down on its luck, but he does not expect it to remain that way. Above and beyond everything else, he is a *Korean*. His patriotism and his love for his country are as deep as ours for our country.

Racially the Koreans are not quite mongoloid; they are the result of fusion of various strains with one of the main original components approaching the white note. The colour of the skin, facial contours and sometimes the form of the eyes, point to a closer relationship to the West than the Chinese can claim.

One of the primary concerns in Korea at the present is that of combating diseases prevalent in the battle areas. Water-borne sewerage systems are known to have been established in the major cities, but the majority of the population depends on more primitive methods. Night soil is collected from poorly protected privies and pails stored in crude leaky cisterns, when it is removed from time to time to be used as fertilizer. Widespread pollution of the soil results. In some rural districts, indiscriminate soil pollution is practised in the field. Korea is known for the following diseases: diarrhœa, bacterial food poisoning, dysentery in all its forms, typhoid fever, cholera, and the various worm infestations.

Water from rivers, lakes, springs and from wells are all contaminated by drainage from sewers, latrines or paddy fields, and although the water may look clear and pure, it is loaded with disease organisms.

Malaria is very common, and venereal diseases are widespread. Vectors of disease are numerous and include mosquitoes, flies, fleas, lice, ticks, water snails and rodents.

The United Nations Authorities have, however, taken every possible precaution, to safeguard the United Nations troops fighting in Korea, against any of the above-mentioned diseases, and this has been proved by the fact that only a *very* small percentage of the troops have contracted any of the diseases.

With a land area of 85,242 square miles, Korea has a population of 29,300,000 people.

The Koreans' religious beliefs are composed of a mixture of Buddhism, Animism and one or two others, including Christianity.

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CURRENT EVENTS

MINISTER OF DEFENCE: VISIT TO KOREA

THE Minister of Defence, Mr. F. C. Erasmus, the Secretary of Defence, Mr. H. F. Cuff, and the Air Chief of Staff, Brigadier H. G. Willmott, flew by Comet aircraft at the end of 1952 to visit South Africans fighting against the Communists in Korea.

SOUTH AFRICAN FIGHTER AIRCRAFT BEING REPLACED BY JETS

Brigadier H. G. Willmott, Air Chief of Staff, said that South African fighter aircraft strength is being converted to jets and the South African Air Force has started a programme of replacing all its Spitfires with jet fighters. The latest South African Air Force acquisition was a second Vampire jet two-seater fighter trainer similar to the one already in use at Langebaanweg, where pilots who had volunteered for service in Korea were being trained.

Brigadier Willmott said he did not know exactly how many aircraft would be involved in the changeover but the whole squadron in Korea would be re-equipped with the Sabre jet aircraft. Conversion would be slower in the Union. Existing piston-engined aircraft would be replaced with jets as the former became unserviceable.

SOUTH AFRICA TO SEND MILITARY CONTINGENT TO CORONATION

At the invitation of the British Government, South Africa will send a military contingent consisting of 28 officers and 141 other ranks to take part in the Coronation ceremony of Queen Elizabeth.

No. 2 S.A.A.F. SQUADRON IN KOREA

Brigadier H. G. Willmott said in a statement that while there are sufficient volunteers to meet the requirements of pilots and ground personnel of No. 2 Fighter Squadron in Korea, the Squadron's demands are causing a drain on the limited Air Force establishment in the Union. The statement added that 181 pilots—including 29 now on service—had served with the Cheetahs. Fourteen pilots were now undergoing the usual intensive operational training at Langebaanweg. A small number of pilots had volunteered for second tours of duty in Korea. The total number of Permanent Force personnel who had volunteered and were available for service in Korea was 702, of whom 383 were artisans.

Since the Cheetahs had begun operations about two years ago, the pilots had flown 10,000 operational sorties. The squadron's personnel had won more than 350 American awards, including a Legion of Merit, two Silver Stars, 38 D.F.Cs. and a cluster to the D.F.C., one Soldier's Medal, 34 Bronze Stars, 146 Air Medals and 148 clusters to the Air Medal.

The squadron's casualties so far were four prisoners, 11 killed (non-battle casualties) and 25 missing.

PORTRAIT OF GENERAL SMUTS AT CRANWELL R.A.F. TRAINING COLLEGE

Approved by Mrs. Smuts as "one of the nicest paintings of the General," an oil portrait of General Smuts, one of the founders of the Royal Air Force, is

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to be sent to England, where it will hang in the Assembly Hall of the R.A.F. Training College at Cranwell. The painting, which is by Georges Duby, of Pretoria, was commissioned more than a year ago by Brigadier H. J. Bronkhorst, then Acting Chief of Staff, for the South African Air Force authorities who paid for it.

SOUTH AFRICA HOLDS WORLD GLIDING RECORD

South Africa now holds a world airflight record for the first time in history. This is the gliding record set up on 9th February by Messrs. Boet Domisse and Sam Barket of 272.5 miles (436 kilometres). The previous record set up in 1939 by two Russians was 416 kilometres. The South Africans flew in a "Kranich" two-seater glider from Keetmanshoop to Marienthal in South-West Africa and back again, and were in the air for 7 hours 5 minutes. The Aero Club of South Africa has been notified by the International Air Flight Association in Paris that the record has been officially recognized.

UNION DEFENCE FORCE BEING INSTRUCTED ON ATOMIC DEFENCE

Officers and other ranks of the Union Defence Force who follow courses at the South African Military College, Voortrekkerhoogte, are now being instructed in defensive tactics to be used in the event of an atomic war, according to a senior officer at General Headquarters, Pretoria. He added that this was the first step to be taken to prepare the South African forces against atomic, bacteriological and chemical warfare.

JAN SMUTS AIRPORT EQUIPPED WITH WORLD'S MOST MODERN LIGHTING SYSTEM

The Jan Smuts Airport, the Union's new international air terminal which lies between Johannesburg and Pretoria, will be equipped with the world's most modern airport lighting system when it is opened in 1953. It is an improvement on London Airport, which was the most up to date. South African Railway engineers have sought the most expert advice to ensure that pilots will have the best possible visual aids. What the pilot will see when approaching the airport will be five brilliant bars of lights cut by a centre line of lights running 3,000 yards to the runway's edge. More than 1,000 lamps will be installed to give low and high intensity lighting for runways and approaches, pick out taxi tracks in blue and mark obstructions in the vicinity. Runways and approach lights have five stages of brilliance up to a maximum of 33,000 beam candles.

Other aids to be installed will be illuminations for the wind direction indicator and the landing "T." All lights will be controlled automatically. The contract for the lighting system is worth £110,000. All the equipment has been made in Britain to standards set by the International Civil Aviation Organization. The total cost of the airport will be more than £6,000,000.

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ROYAL NEW ZEALAND AIR FORCE

VISIT BY BRITAIN'S C.A.S. (DESIGNATE)

[R.N.Z.A.F. Photograph

Air Chief Marshal Sir William F. Dickson, K.C.B., K.B.E., D.S.O., A.F.C., R.A.F., with Air Vice-Marshal D. V. Carnegie, C.B., C.B.E., A.F.C., R.A.F. Chief of Staff, R.N.Z.A.F.

THE Chief of Air Staff (Designate) Royal Air Force (Air Chief Marshal Sir William F. Dickson, K.C.B., K.B.E., D.S.O., A.F.C., R.A.F.), in the course of his tour of Allied and Dominion air forces, visited New Zealand from 31st October to 4th November.

The Air Chief Marshal, who was paying his first visit to New Zealand, was met at R.N.Z.A.F. Station, Whenuapai, by the Chief of the Air Staff, R.N.Z.A.F. (Air Vice-Marshal D. V. Carnegie, C.B., C.B.E., A.F.C., R.A.F.), and the senior air liaison officer for the United Kingdom in New Zealand (Group Captain W. G. Abrams, R.A.F.). Visits were made to as many R.N.Z.A.F. units as time allowed and at Air Force Headquarters in Wellington Sir William talked with the Air Board and addressed Directors. In Wellington, too, calls were made upon the Prime Minister (the Rt. Hon. S. G. Holland), the Minister of Defence (the Hon. T. L. Macdonald) and the High Commissioner for the United Kingdom (Sir Roy Price, K.C.M.G.).

At a Press conference the Air Chief Marshal stressed the value of the tour he was making in acquiring a background against the time he would assume office (January) as C.A.S. He paid a tribute to the quality of the New Zealanders who had served under his command during the war and expressed the hope that the R.N.Z.A.F. would not fail to get the officers and men of similar calibre which it needed today for its peace-time establishment.

R.N.Z.A.F. TO COMPETE IN ENGLAND—NEW ZEALAND RACE

The Royal New Zealand Air Force has decided to enter a Hastings transport aircraft of No. 41 Squadron in the England to Christchurch air race in October, 1953. The Hastings will compete in the transport handicap section of the race, which is attracting world-wide interest. The crew to represent the R.N.Z.A.F. will be chosen later.

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BOOK REVIEWS

History of Marine Corps Aviation in World War II. By Robert Sherrod. 496 pp. Illustrated. (Combat Forces Press, 1115 Seventeenth Street, Washington 6, D.C., U.S.A.; $6.50.)

"This book," states the author in his preface, "is written for the one per cent. of the U.S. Armed Forces who served in Marine Corps Aviation in World War II." But it deserves far wider circulation than that, for it gives a meticulous, accurate, unvarnished history of the Pacific War that will interest and shock British readers, whose attentions were focused at the time on a war nearer home.

Probably few people outside America realize the extent of U.S. Marine Corps aviation; fewer still understand why the Marines need their own air force. Even Mr. Sherrod does not give the reason in one plain, straightforward statement of fact; but when one reads his book it begins to become apparent. The Marines are, in many ways, America's *élite* shock troops, and the Second World War showed that air support is essential during such grim amphibious operations as their assault landings at Tarawa and Iwo Jima. The U.S.A.A.F., proud of its growing independence, recoiled from too-close ties to the ground forces—the term "air support" implied a secondary role, so the Marines built up their own aviation from a total of nine squadrons and 232 pilots on 1st September, 1939, to 128 squadrons, 10,049 pilots, 5,389 ground officers and 101,086 enlisted men and women on V-J Day, complete with their own Marine Corps escort aircraft carriers.

The achievements of these units did not make headlines to the same extent as those of their colleagues on the ground, but they were no less important. In particular, the Marines developed the technique of close support from a hit-and-miss business, equally hazardous to friend and foe, to the stage where they were able to wipe out Japanese gun positions, tanks and strong-points only fifty yards ahead of friendly troops. These lessons, learned the hard way over Guadalcanal, the Philippines and Okinawa, are being applied today in Korea, where U.S.M.C. pilots have earned a tremendous reputation by blazing a path ahead of United Nations ground forces with rockets, bombs, napalm and cannon fire from Corsair fighters similar to those many of them flew eight years ago against a different enemy.

The Japanese, like the Germans, are now regarded as potential allies, but after reading this history one cannot help recalling the words of Major Alexander de Seversky: "To make up for inadequate manpower in World War II we created a Frankenstein monster. Now, in preparing to subdue him if necessary, we are advised to create two such monsters, again with no assurance that they will not turn against us." This is no place for details of Japanese atrocities, but it seems worth while to add to Major Seversky's warning the report of Colonel Presley Rixey, after his troops had occupied the Bonins: "We were flabbergasted at first. We had expected beheadings (of prisoners), of course. But never cannibalism! What manner of men were these? Polite and co-operative—obedient soldiers, brave and fearless—but beneath this veneer—barbarians and worse." What sort of men also were the 18,600 Japanese pilots who were ready to crash *kamikaze* suicide aircraft into the Allied invasion fleet they expected to see off the coast of Kyushu in October or November, 1945?

Mr. Sherrod has spared no effort to make this one of the most complete, informative military histories of the Second World War. The narrative is supported by 144 excellent photographs, drawings, graphs, twenty-one maps, glossaries of abbreviations and aircraft type designations, historical notes on every Marine Corps aviation unit, and nine appendices listing everything from awards to statistics of enemy aircraft shot down.

J. W. R. T.

The Fated Sky. By Air Chief Marshal Sir Philip Joubert de la Ferté. 280 pp. Illustrated. (Hutchinson & Co., London; 18s.)

Typical of the age in which we live is a tendency to imply that senior Service officers and business executives reached the top only through a judicious mixture of luck, financial fiddling and wire-pulling. Which is why the first half of this book should be read by every young Service pilot. Admittedly, Sir Philip Joubert did not lack comfort and modest luxury as a young man, but few will envy the hazardous start of his flying career, which brought him his "ticket" after one hour fifty minutes' flying on stick-and-string aircraft.

Soon afterwards he flew to war as a member of No. 3 Squadron, R.F.C. Equipped with Bleriot monoplanes (one with the words "Daily Mail" under its wings), they were ordered, secretly, to ram any Zeppelin they might encounter on their way to France, via Dover, although parachutes were, of course, unknown to Service flyers then. Sir Philip writes:

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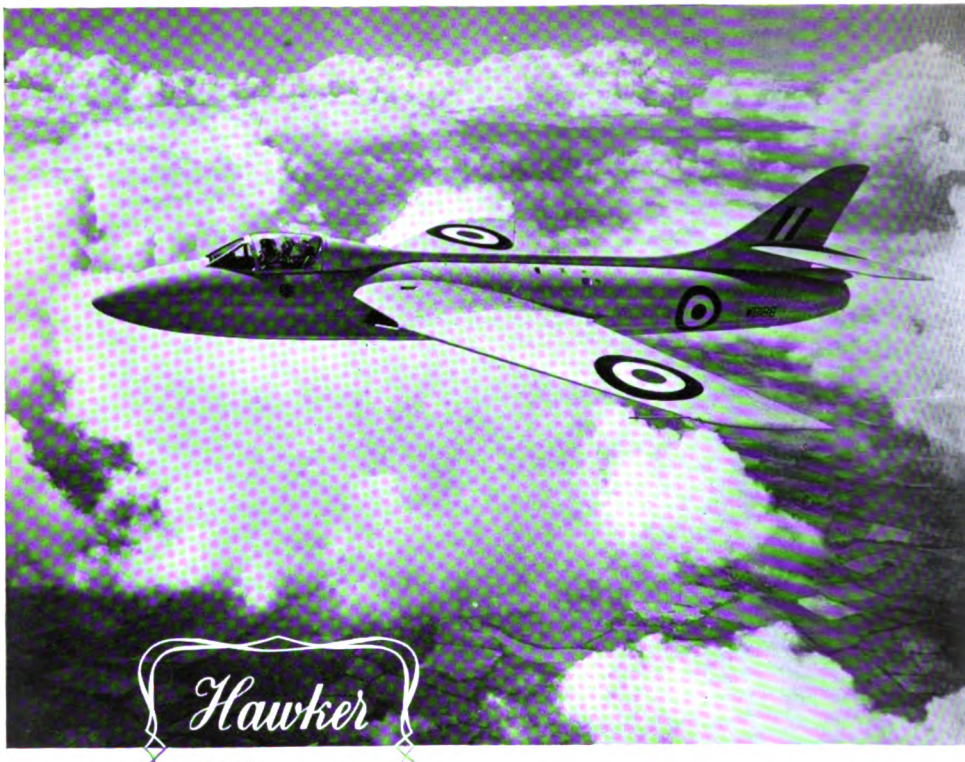

Ejection Seats designed by the Martin-Baker Aircraft Co. Ltd. and fitted to all high speed aircraft

Martin-Baker

AIRCRAFT COMPANY LIMITED

HIGHER DENHAM NEAR UXBRIDGE MIDDLESEX

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"I was proceeding peacefully 20 miles north of Portsmouth at about 3,000 ft., when my mechanic gripped my shoulder and shouted 'Zeppelin, Sir.' Shuddering with fright, I looked round and saw one of the Spit forts lifting its head above the morning mist. In this light it looked like an airship—but I had a lot to say to the mechanic when we landed." The next day he flew the Channel, wearing a motor-car tyre inner tube round his middle as a primitive "Mae West."

With such equipment Lieutenant Joubert and his colleagues made the first photo-reconnaissance flights, and later fought the Germans, Turks and Austrians in France, Ismailia and Italy. When the fighting was over he stayed in the Service, and *The Fated Sky* leaves little doubt of the interest as well as the frustrations of an R.A.F. career between wars. The chapter describing his experiences during a visit to the North-West Frontier region of India is, perhaps, most amusing of all. More serious, but no less interesting, is Sir Philip's account of the early development of radar, with which he was closely concerned.

Unfortunately, after about page 204 the book becomes less of an autobiography than a rather flat account of the work of Coastal Command and the land forces in Burma. The reader cannot help being disappointed because, as Commander-in-Chief, Coastal Command, from 1941 to 1943, and Deputy Chief of Staff (Information and Civil Affairs), S.E.A.C., from 1943 to 1945, Sir Philip must have seen and heard many things that would make fascinating reading. Instead, the last part of the book is so dull that one can only regret that the quotation on the flyleaf is taken from *All's Well that Ends Well*:

"The fated sky gives us free scope:
Only doth backward pull our slow designs
When we ourselves are dull."

J. W. R. T.

Clear the Decks. By Rear-Admiral Daniel V. Gallery, U.S.N. 215 pp. Illustrated. (George G. Harrap & Co., London; 12s. 6d.)

The U.S. Armed Forces produced several larger-than-life commanders in the Second World War. General Patton was one, Dan Gallery another; and Admiral Gallery's autobiography is every bit as colourful and packed with good salty yarns as one would expect and hope.

The first two chapters describe his command of a U.S. Fleet air base in Iceland from early 1942 until May, 1943, and leave no doubt of the author's sense of humour and irreverence for all established officialdom. From then on, *Clear the Decks* is the story of a ship as well as the autobiography of a man. The U.S.S. *Guadalcanal* was no beauty. Gallery describes her as "a simple, frail and plain little baby flat-top of 11,000 tons." But she was handy, happy-go-lucky and carried the motto "Can do."

She started off with one of the greenest and most inexperienced crews that ever put to sea. Average age of the lads was about 21, and over 80 per cent. had never seen salt water before. The chief bo'sun's mate said he would "swap the lot for a bucket of oily rags," but Gallery thought differently, and comments: "If you tell a bunch of old-timers 'We're going out next cruise and sink the *Tirpitz*' they are apt to look at you kind of funny and say, 'The Old Man has finally blown his top and gone nuts.' A bunch of youngsters will say, 'Okay, we're going out to sink the *Tirpitz*' and may go out and do it. That's the kind of crew we had on the *Guadalcanal*."

They did not sink the *Tirpitz*, but after sinking several U-boats they made up their minds to capture one—and did it! Furthermore, they boarded U-505 before its captain had time to destroy his code books. So after that Allied experts were able to read German messages to submarines at sea as if they were in plain English.

As Admiral Gallery warns readers at the beginning, "the perpendicular pronoun plays a prominent part in this story," but only because he feels that, as skipper, he is entitled to feel smugly modest about things that went right and to take the rap personally for things that did not. The result is sincere and scrupulously fair—a man's book with its moral summed up in the last sentence: "So long as the democratic nations keep their atomic powder dry, and raise their children to fear God, we need fear no other power on earth."

J. W. R. T.

The Camouflage Story. By Geoffrey Barkas. 224 pp. Illustrated. (Cassell & Co., London; 12s. 6d. net.)

The author, by profession a maker of films, with no qualifications other than intelligence, common sense and abundant good humour, mastered the art of camouflage in the Second World War to the extent of becoming Director of Camouflage with the Middle East Forces.

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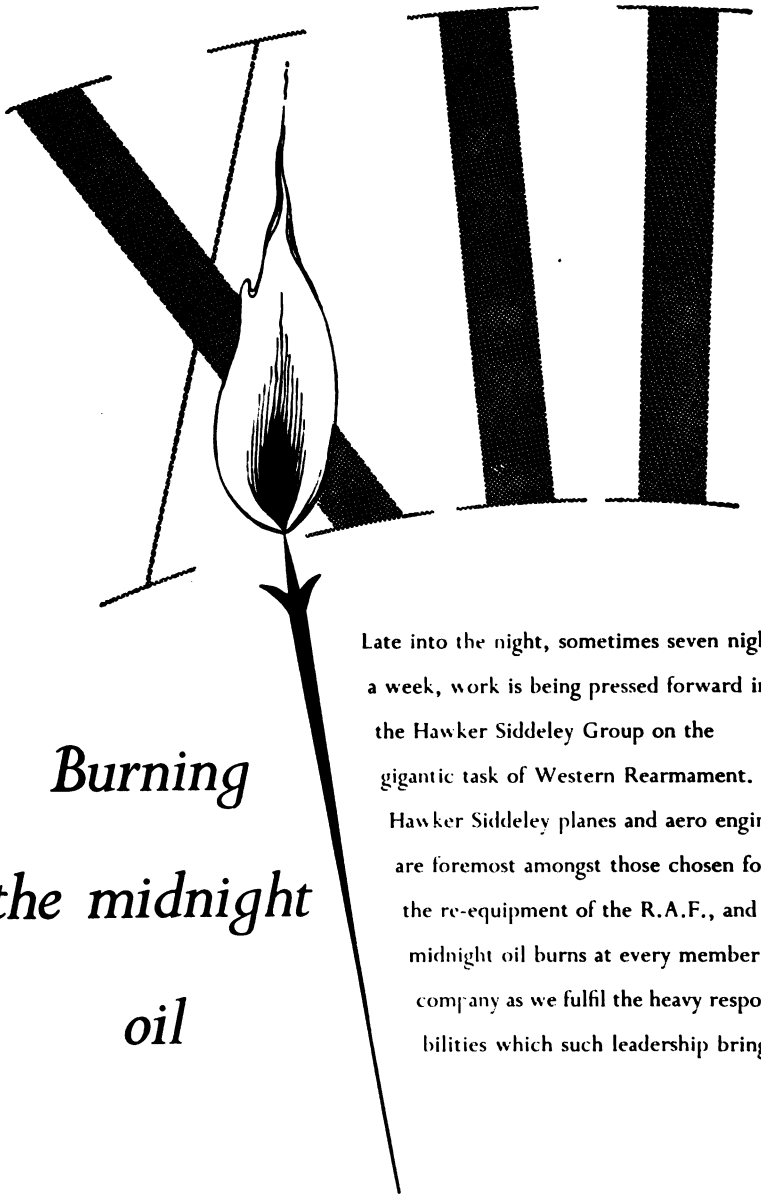

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No one could write with more authority on the vital part camouflage played in the early and final stages of this campaign.

He begins his book with "This must, I suppose, be called a War Book . . ." but readers will find it unlike any war book yet published. It is written in a very light style, without the usual lengthy descriptions of the dispositions of various forces, strengths, strategy or tactics. He gives a very human touch to the stirring events in North Africa, introduces a variety of well-known personalities in a humorous manner, and his account of situations both grave and gay makes interesting reading.

The rebirth of war camouflage and its many uses are fully dealt with, as is the enormous advance made in the Second World War in this art of concealment from and deception of the enemy. This book tells the story behind Mr. Churchill's words when, announcing the victory of Alamein in the House of Commons, he said: "By a marvellous system of camouflage complete tactical surprise was achieved in the desert." The grim struggle in North Africa, with the ebb and flow of the tide of battle; first victory, then defeat, and then on to final victory, is all recounted in the author's personal experiences when carrying out reconnaissances to ascertain how, where and when camouflage could be brought to the assistance of our armies.

Of particular interest to members of our Air Forces is the description of the successful camouflaging of hangars, landing strips and three Hurricanes, hiding them from reconnaissance aircraft and bombers and enabling them to operate from Tobruk for three months during the siege.

The final chapters of our victory at Alamein is no mere account of the concealment of a few columns or gun-pits from aerial observation, but the enormous achievement of concealing the assembly of a vast military force at a point from which the main assault was to be launched; and the building up of a "phantom army" in another part of the desert at least to a degree which would confuse the enemy. It succeeded in misleading Rommel as to the locality from which the main attack would be made, played a large part in his defeat and, as the author says, "helped to put the fighting men into battle on more favourable terms and so to purchase victory at a lower price in blood."

That Rommel's Intelligence failed to extract the truth from the vast picture of the "build-up," spread out on the open desert under the eyes and cameras of his airmen, was due in no small measure to the ideas and enthusiasm of a small band of military camouflage officers recruited from among film technicians, architects, painters, sculptors and exponents of other, even gentler, arts, including entomology and the design of stained-glass windows. Their valuable contribution to our fighting men makes interesting reading.

A. H. S.

Brassey's Annual, 1952. Edited by Rear-Admiral H. G. Thursfield. 430 pp. 22 full-page illustrations, with additional tables and diagrams. (William Clowes & Son, London; 63s. net.)

The 1950 edition of *The Armed Forces Year-Book*, which was the first issue to deal directly with the Army and Royal Air Force as well as the Royal Navy, was reviewed in our January, 1951, number, and a further review of the 1951 edition in our January, 1952, number. The latest (1952) edition is still fully informative upon our three Defence Services, as well as containing interesting details of the armed forces of other Powers.

The first chapter, "The Making of an Officer," by the Editor, might be considered slightly controversial in the light of the existing system for the provision of officers for the Services.

One of the most interesting articles is that contributed by J. M. Spaight, C.B., C.B.E., LL.D., in the Air Force Section, entitled "The Future Influence of Air Power." Other articles of interest in that section are "The Task of the Royal Air Force," by Air Vice-Marshal W. M. Yool, C.B., C.B.E., who also contributes "The United States Air Force"; "Training in the R.A.F.," by "Ajax"; "Aircraft Development," by Group Captain G. W. Williamson, O.B.E., M.C.; "The Tactical Air Forces," by E. Colston Shepherd; and "Foreign Air Forces," by H. F. King.

The sections on the three Services together with the Reference Section provide a most useful book of reference on the Armed Forces. With its navy-blue cover and anchor and in the earlier chapters, *Brassey's Annual* still has a predominantly nautical flavour. Like all books of this nature, where appointments held by individuals are published, it requires amendments as soon as published, and to be a reliable handbook for officers throughout the year these should be made as changes occur. An excellent opportunity is provided by *The Armed Forces Year-Book* of gaining knowledge, which cannot but be valuable to all serving officers, of up-to-date details of our Defence Forces and those of other nations.

A. H. S.

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When, in 1785, Gieves first became tailors to the Services, an officer could wear much what he pleased—and usually did. When the first of the Regulation Sealed Patterns was laid down, Gieves were there. When the R.A.F. was formed in 1918 from the R.F.C. and R.N.A.S., Gieves were there again. And we are still here, having seen many a Regulation give way to many another, but producing always, by force of long habit, very good uniforms. We make no mistake about it—unmistakably Gieves

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Pioneer Pilot. By William Armstrong. 267 pp. Illustrated. (Blandford Press, London; 15s. net.)

The title may be misleading to Service personnel, who may think the author was one of that small band of adventurers in the early days of aviation such as Moore-Brabazon or Cody, or those founders of Service flying, among whom were Major Trenchard, A. G. Board, Arthur Longmore, Brook-Popham, Charles Longcroft and Smith-Barry. The author makes it quite clear in the preface to his book that this is not so. It is the autobiography of a pilot whose wealth of experience is recounted from the time he learnt to fly at the latter end of the First World War (1917), and the term "Pioneer" clearly refers to the pioneering work done in civil aviation.

Recounting in full detail one's own life experiences, particularly when they have been full of adventure and happenings uncommon to most men, requires considerable literary skill if any suspicion of egoism is not to be aroused in the minds of those who read such a book. It is also difficult to avoid giving lurid details of the horrors of fatal aircraft accidents, particularly those enhanced by burning aircraft, when spectacles of this kind are gradually accepted as part of flying life in thirty years' experience. The author seems to have erred slightly in these two respects, but not sufficiently so to detract from an interesting account of his own experiences.

The story begins with his early life in humble surroundings at Gateshead and a craving to fly which caused him to join the Royal Flying Corps in August, 1917. His training, with its full quota of crashes and narrow shaves, is graphically recounted, followed by his experiences as a pilot in France with the "Independent Air Force" formed for bombing Germany.

It is not until Chapter X that the author reaches the real subject matter of the title of the book, *Pioneer Pilot*, when in 1919 he begins his career in civil aviation.

After his first appointment as a pilot on the London-Paris route, there follows a series of fascinating adventures. At this time of new development of civil aviation and the inauguration of new aircraft and new services, it is interesting to see in retrospect the amazing growth that has been made since the use of converted Service aircraft (D.H.9As) thirty years ago and the flights of jet Comets today, during which period such men as the author pioneered new routes in all parts of the world.

In this autobiography is embodied all the history of those years, its difficulties, hardships, fears and successes. Exciting experiences fill the pages as well as mere routine flying when ferrying V.I.Ps. such as H.R.H. Prince Bernhard, Anthony Eden, Orde Wingate, Admiral Cunningham and President Benes of Czechoslovakia.

A chapter headed "New Adventure" gives an account of his introduction in 1935 to the new ideology "Moral Rearmament." The effect of this is reflected in his closing chapter. Active flying behind him, from the comfort of his fireside chair he reviews the past thirty years of aviation. Conscious of the greater benefits which aviation might have brought to the world, he regrets that this should have been eclipsed by its increasing menace as a war weapon. When recounting the Moral Rearmament Organization's sterling work as peace-maker between management and pilots of National American Air Lines and how they were instrumental in averting a crippling strike, he identifies himself as an enthusiastic supporter of M.R.A.

With the ideologies of such a movement spreading more rapidly among all peoples, he visualizes the day when aviation would be used solely for peaceful purposes, with its unlimited possibilities of service to mankind. He heads this chapter "The Destiny of the Aeroplane."

A. H. S.

King George V. By Harold Nicolson. (Constable; 42s.)

This, as the author explains, is the second part of a dual biography of King George V, the first section by John Gore dealing with His Majesty's private life, and this part describing his more public and official activities. This is not to say, however, that Mr. Nicolson's book is merely a cold record of history; in recording the history of an age he has at the same time given us a convincing and heart-warming individual picture of a man whose personality and character did so much to raise that age to what greatness it achieved.

Perhaps the greatest virtue that the biographer shows here is his wise and discerning selectivity. In modern times the historian is no longer worried by lack of source material; on the contrary, he is faced with a vast pile of contemporary material from which he has to winnow the essential clues to his subject. In this volume, long but never tedious, the outstanding trends and motifs are lucidly illustrated or commented on, and a clear outline picture presented, in which the main figure is always present to the eye but never over-emphasized to the exclusion of the background.

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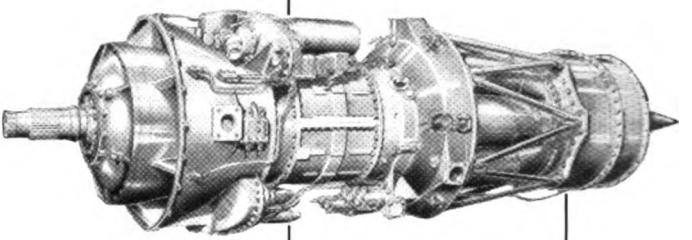

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A reader of this book may learn at least two worth-while lessons. The first lies in the demonstrated value of character a principle to which the observer may often be blinded by the more flashy and ostentatious talents but which is here shown to be the lode-stone of a career which on every count must be considered successful. King George V was not gifted with a quick or profound brain, nor with great outward charm of manner or other attributes so often thought essential to success in public life. His one great quality lay in his sincere, straightforward character, founded on the best traditions of the past, yet adaptable to the changing influences and requirements of the exceptionally fluid age in which he lived. It was in his own personality that his greatest strength always lay; and it was to his people's credit, as well as his own, that they finally came to recognize and truly admire the value of that personality and that strength.

The second main theme of King George's life was service. He realized and illustrated more than any of his predecessors had ever done the principle that leadership is based on service; that he who demands fidelity from his servants must himself be a faithful servant. It is interesting to us to read that both these pillars, character and service, rested partly upon the foundation of early service in the Navy, where Prince George received full and unpreferential training and learnt many of the basic lessons that were to direct the whole course of his life.

No finer illustration of what that life meant to this country can be drawn than from the consideration of the comparative position of the Crown in our national life in the early part of this century, surrounded by the doubts and mistrusts of world revolution, and today, when it seems to many of us the one sure rock in a changing political world. This is the measure of the work that King George did, and of the man he was.

C. N. F-N.

The Defence of Western Europe. By Drew Middleton. (Frederick Muller Ltd.; 15s.)

In recent years American foreign correspondents and similar "experts" have written so much nonsense, based on shallow experience and scanty evidence, that there is a real danger that when one of them produces a genuinely valuable book it will be condemned as just another sensational pot-boiler. In the case of Mr. Drew Middleton's *The Defence of Western Europe*, this must not be allowed to happen. Mr. Middleton writes sense; his thinking is rational, lucid and intelligibly presented; and, above all, he seems to have no narrow national outlook or preconceived prejudices, and to be able to survey and assess the immediate problems of European defence with a mind that is open without being vacant.

Mr. Middleton considers in turn the actual and potential strength, military, political and economic, of the opposing blocs of world power today. In the limits of 250 pages he clearly cannot go into profound or detailed examinations, but he presents the strengths and weaknesses of either side logically and lucidly. He has a gift for exposing the fallacies of commonly accepted generalizations, particularly those that produce an under-estimation of our potential enemies' strength. On the other hand, he does not fall into the common error of exaggerating the threat of the unknown, and over-inflating the Communist military bogy. His analysis of the value and deficiencies of the satellite countries' contribution to the total Communist strength is particularly illuminating.

It is only too easy for a nation, as an individual, to succumb to flattery, but after the flood of condemnation and abuse that has assailed Great Britain, its leaders and policies from transatlantic pens in recent years, it is a refreshing change to find an American presenting our motives, our efforts, our difficulties and our accomplishments in an understanding and sympathetic manner. It is perhaps more refreshing still to find him acknowledging some of the deficiencies in the approach of some of his own countrymen to Europe's problems. Hear him, for example, on the N.A.T.O. committeeman: "In European history the autumn of 1951 will be remembered as the period of the great Washington invasion, when the confusion, self-assertiveness and basic uncertainty common to American bureaucrats was transferred . . . to Western Europe on such a large scale that several innocent non-official Americans were pre-briefed, briefed, and de-briefed before they had a chance to protest"; again, "The practice of grabbing a European by the lapels and shouting 'Damn it, you've got to integrate!' gets the Americans nowhere"; and, finally, he quotes "No country is so poor as the one that can give only money." Mr. Middleton's approach to the problem of our allies, their military value at present and in prospect, their need for economic, military or physical support, is equally direct, equally realistic, equally refreshing. Of the weaker brethren he is frank and pulls no punches; always he faces the facts. Of the Yugoslavs, for example, he says: "What counts today is not whether a people . . . admires the constitution of the United States or keeps its gaols clean, but whether it will stand with the West, whether it can use the arms America can give it, and whether, in the last analysis, if war starts, it can be counted on to fight on the side of the democracies."

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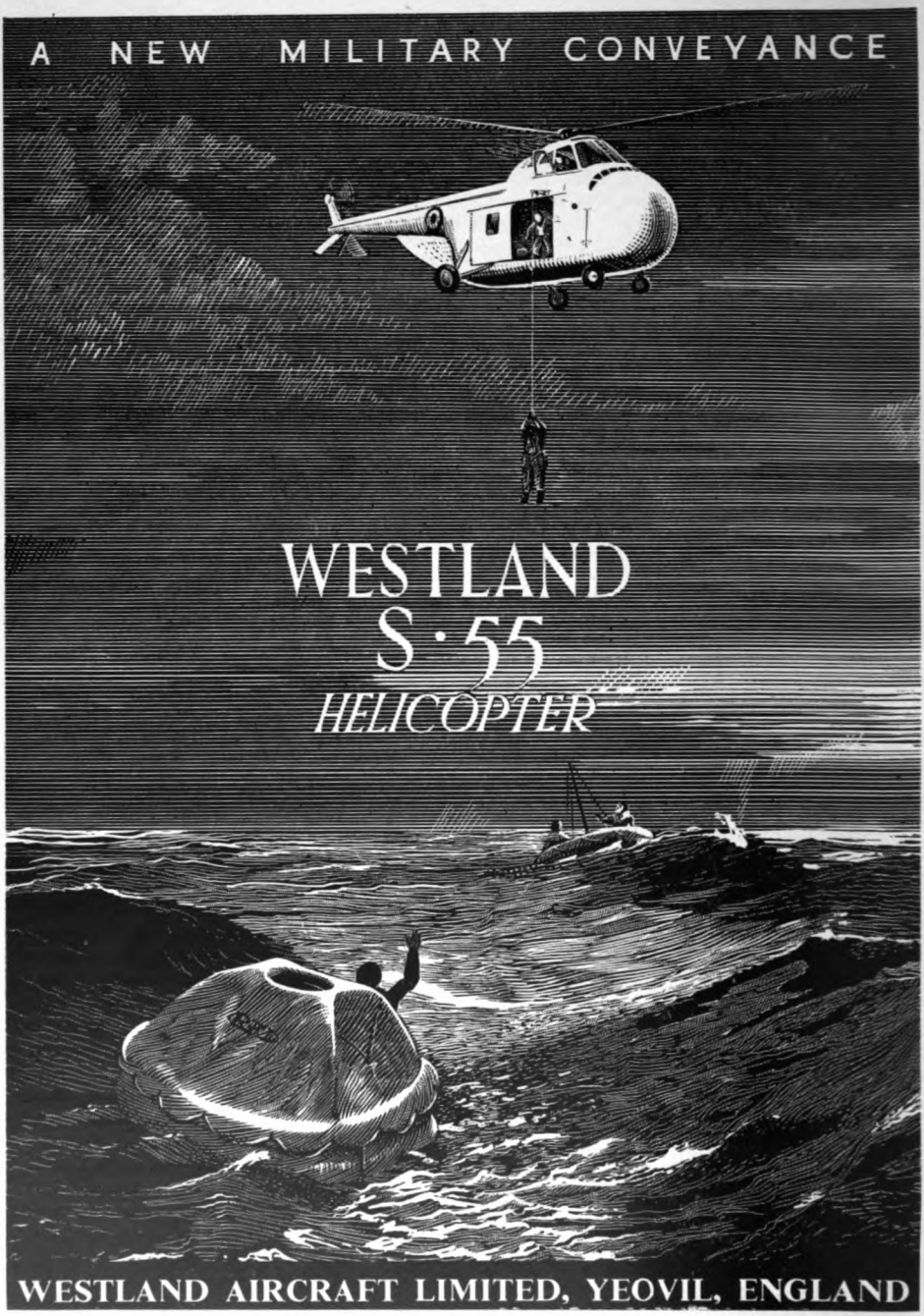

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This is straight thinking and straight talking: more of it, by more people, would go far to solve the problems that must be solved if we are to meet the imminent Communist danger. Service readers, perhaps especially those faced with promotion examinations or staff courses, will find in this book a most valuable exposition of many of our current military problems in Europe, an accurate analysis of their causes, and some practical and reasoned suggestions for their solution; above all, they will find them treated neither optimistically nor pessimistically, but realistically.

C. N. F-N.

NEW BOOKS

REVIEWED IN THIS NUMBER OF "THE ROYAL AIR FORCE QUARTERLY"

The Defence of Western Europe. By Drew Middleton. (Frederick Muller Ltd.; 15s.)

A Review of King George V. By Harold Nicolson. (Constable; 42s.)

The Camouflage Story. By Geoffrey Barkas. (Cassell & Co.; 12s. 6d.)

Pioneer Pilot. By William Armstrong. (Blandford Press; 15s.)

Brassey's Annual, 1952. Editor, Rear-Admiral H. G. Thursfield. (William Clowes; 63s.)

Clear the Decks. The autobiography of Rear-Admiral Daniel V. Gallery, U.S.N.

History of Marine Corps Aviation in World War II. By Robert Sherrod. (Combat Forces Press; $6.50.)

The Fated Sky. Sir Philip Joubert's autobiography.

OTHER BOOKS RECEIVED FOR REVIEW

The Suez Canal in World Affairs. By Hugh J. Schonfield. (Constellation Books, London; 15s.) 174 pp.; illustrated. A history of one of the oldest engineering enterprises considered by civilized man, from the ancient Egyptians to Ferdinand de Lesseps, dealing with its strategical importance through the ages and its part in the international situation today.

War Crimes Trials. Vol. IX: The Dulag Luft Trial. Edited by Eric Cuddon, Barrister-at-Law. (William Hodge & Co. Ltd., London; 18s.) 251 pp.; illustrated. The trial of the Kommandant of an Air Force interrogation camp and his assistants, charged with the ill-treatment of Air Force prisoners of war. This most interesting case is noteworthy for the large number of members of the R.A.F. who appeared as witnesses, or whose affidavits were adduced in evidence, both for the prosecution and defence.

Wait for the Dawn. By Derrick Nabarro, D.C.M., B.A. (Cassell & Co. Ltd., London; 12s. 6d.) 207 pp. The author, second pilot in an R.A.F. bomber shot down over the German coastline, describes a series of escapes achieved in a continued effort to get back to England, which he eventually accomplished in October, 1942. He describes the good, bad and indifferent of many nationalities encountered during his adventures. There is a welcome absence of any sensationalism in this book, yet the mental strain of solitary confinement, the hardships endured throughout, lose none of their reality thereby. Interest is sustained from the first to the last chapter. He received the first D.C.M. to be awarded to R.A.F. personnel for gallantry in escape.

Flames in the Sky. By Pierre Clostermann, D.F.C. (Chatto & Windus, London; 12s. 6d.) Author of "The Big Show." 200 pp.; illustrated. From the archives of the Allied and Axis air forces this famous French ace, from a mass of material, has depicted the individual valour which lay behind official communiqués and statistics. He gives the tactical background of each exploit, and appends fascinating notes on the performance of the various aircraft concerned. He throws an interesting light on the Japanese "Suicide-pilots," the attempt to aid the Warsaw insurrection by air, the exploits of such pilots as Max Guedj and "Screwball" Beurling, and the Luftwaffe's last effort.

Wind-Tunnel Technique. By R. C. Pankhurst, D.I.C., A.R.C.S., Ph.D., A.F.R.Ae.S., and D. W. Holder, D.I.C., A.C.G.I., B.Sc., A.F.R.Ae.S. (Sir Isaac Pitman & Sons Ltd., London; 57s. 6d.) 702 pp.; illustrated. An account of experimental methods in low-

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and high-speed wind tunnels. Fully describing this valuable tool for investigating the many problems in fluid dynamics, both for fundamental research and for aircraft design. The topics discussed include wind-tunnel design, ancillary apparatus, model construction, flow visualization, and the reduction of observations. Each chapter carries an extensive bibliography, and a great deal of frequently needed data is given in the Appendices. A useful addition to the literature of aerodynamics.

Climate and the British Scene. By Gordon Manley. (Collins, London; 25s.) 314 pp.; illustrated with 31 coloured plates and 41 in black and white. The author—recently President of the Royal Meteorological Society, Professor of Geography in the University of London, but equally at home in his observation hut on the wind-swept heights of the Pennines—shows us the best and worst of our much-maligned climate. He traces the subtle influence of sunshine and cloud, of dew, mist, rain, hail and snow, of heat and cold, on the changing scene through the seasons. This book traces scientifically the intimate yet elusive relationships, and gives an interesting study of the British climate, supported by a wealth of coloured pictures of scenes from every part of the country so familiar to us all.

Aircraft Engines of the World (1952 Edition). By Paul H. Wilkinson. (Sir Isaac Pitman & Sons Ltd., London; 50s.) "The Jet Aircraft and Their Engines" section has now been expanded to five pages of tabulations. It lists 192 of the latest jet planes, including 20 of the U.S.S.R.

The Observer's Book of Aircraft (New Edition). By William Green and Gerald Pollinger. (Frederick Warne & Co. Ltd., London; 5s.) 280 pp.; fully illustrated. The aircraft included in this pocket-sized edition are those most likely to be seen anywhere in the world. To aircraft "spotters" this book is well known, and perhaps the most noticeable feature of this volume is the number of aircraft included that have shed their ban of secrecy in the last three years. 156 aircraft are described, with 270 illustrations. The foreword is by Peter Masefield, M.A., F.R.Ae.S., M.Inst.T., President of the Aircraft Recognition Society.

Across the Space Frontier. By Joseph Kaplan, Wernher Von Brawn, Heinz Haber, Willy Ley, Oscar Schachter and Fred L. Whipple. Edited by Cornelius Ryan. Foreword by the Astronomer Royal, Sir Harold Spencer Jones, F.R.S., F.R.A.S. (Sidgwick & Jackson, London, 25th November, 1952; 21s.). 147 pp.; illustrated. A preview of the conquest and exploration of space by man.

History of the Second World War: "The Campaign in Norway." By T. K. Derry. (Her Majesty's Stationery Office, 10th December, 1952; 35s.) 289 pp.; fifteen coloured maps, seven sketch maps and five pages of photographs.

The Wonder Book of Aircraft. (Ward, Lock & Co. Ltd., London, 25th November, 1952; 12s. 6d.) 256 pp.; eight plates in colour and 300 illustrations.

EUROPE

Stalin's Satellites in Europe. By Y. Gluckstein. (Allen & Unwin, London, 1952; 21s.)

Europe in the Nineteenth and Twentieth Centuries, 1789-1950 (6th Edition, revised and edited by Dame Lillian M. Pearson). By A. J. Grant and H. Temperley. (Longmans, London, 1952; 25s.)

RUSSIA

A History of Soviet Russia. By E. H. Carr. (Macmillan, London, 1952; 30s.) The Bolshevik Revolution, 1917-1923. Vol. II (dealing with the economic order).

A third volume is contemplated dealing with foreign relations. The second part of the project will deal with the struggle for power in the years 1923-28.

MISCELLANEOUS

Modern Staff Training. By F. J. Tickner. (University of London Press, 1952; 12s. 6d.) (The author is Director of Training and Education, H.M. Treasury.)

The Impact of Science on Society. By Bertrand Russell. (Allen & Unwin, London, 1952; 7s. 6d.)

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MILITARY AND AIR FORCE JOURNALS OF THE WESTERN POWERS

The following journals published abroad contain matters of considerable air interest, particularly to Service personnel, and their editors have established liaison with THE ROYAL AIR FORCE QUARTERLY:

UNITED STATES OF AMERICA

Military Review. Published monthly by the Command and General Staff College at Fort Leavenworth, Kansas, U.S.A. Subscription rates to British subscribers, $4.50 a year. 112 pp. Fully illustrated with photo reproductions and diagrams. Although articles are of mainly army interest, there are also many with a variety of ideas on air matters and digests of air force articles from many countries by authoritative writers.

The U.S.A.F. Air University Quarterly Review. Published quarterly by the Air University, Maxwell Air Force Base, Alabama, U.S.A. Subscription rates are $2 a year in U.S.A.: for British rates, application should be made to the Editor. Fully illustrated; 144 pp. Its policy is to inform Air Force personnel of the development of professional thought concerning doctrines of air strategy and tactics and related techniques. U.S.A.F. senior officers contribute an American angle to subjects connected with air warfare which are invaluable to officers of the British Defence Forces now co-operating with them in training in this country and in action in Korea.

Air Force. Published monthly by The Air Force Association. Editorial office, 1424 K. St., N.W. Washington 5, U.S.A. $4 per year in U.S.A.: for British rates application should be made to the Editor. Fully illustrated; 128 pp.; extensive advertisement matter. An American Air Force magazine containing articles of interest on air matters connected with the U.S.A.F. In content might be likened to the R.A.F.'s magazine, *The Air Review*.

Combat Forces. A United States Army monthly journal. Published by the U.S. Army Combat Forces Journal, 1529 18th Street N.W., Washington 6, D.C., U.S.A. Subscription rates to British subscribers $6 a year. 48 pp.; fully illustrated. Articles mainly of interest to army personnel, with very occasional articles of air interest. A magazine of similar format to *Air Force*, but despite its army articles being predominant it has matter of interest to all three Services.

CANADA

The Roundel. The journal of the Royal Canadian Air Force. Published quarterly by "The Roundel," R.C.A.F., Victoria Island, Ottawa, Ontario, Canada. Fully illustrated; 50 pp. It contains matters grave and gay and would be of particular interest to those who have served in Canada.

FRANCE

Forces Aeriennes Francaises. A journal of the French Air Force. Published monthly by Forces Aeriennes Francaises, 5 Place Joffre, Paris (XVII). Illustrated; 130 pp. Subscription rate 2.520 Francs yearly. This journal contains the views of French Air Force officers and other authorities on air matters, and is of considerable interest to those who read French easily.

NORWAY

Royal Norwegian Air Force Journal. This journal serves a similar purpose for the R.N.A.F. that THE QUARTERLY does for the R.A.F. Those who can read Norwegian easily will find much of interest on air matters. Editor, Major O. T. Mehn-Andersen, D.F.C. (who served with the R.A.F. in the late war), Myntgt, Oslo, Norway.

ITALY

ALI. A weekly Air Force illustrated paper of approximately 12 pp. on Air Force matters. The illustrations are first class, and those who have a knowledge of Italian will find much of interest concerning aircraft production and Allied Air Force subjects. The Editor, Corso di Porta Nuova 32, Milano, Italy.

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THE R. A. F. QUARTERLY
AND COMMONWEALTH AIR FORCES
JOURNAL

EDITOR
GROUP CAPTAIN A. H. STRADLING, O.B.E., R.A.F. (RET.)
Assisted by an Air Ministry Advisory Committee of members of the Royal Air Force and Air Forces of the Commonwealth

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EDITOR.

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[*Australian Official Photo*

ROYAL AUSTRALIAN TRANSPORT SQUADRON IN MALAYA

Parachute pack handlers have a dangerous job. Drops are always made at about 300 *feet, and handlers have to keep their balance while the pilot twists and turns to avoid hills until he locates the dropping zone.* (*See page* 183)

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EDITORIAL

DISCIPLINE—ANCIENT AND MODERN

"MY dear old boy, look at this! 'Discipline.' All very well for the Guards, but pretty ancient stuff, isn't it? All right for forming hollow square, present pikes or prepare to receive cavalry, but a bit archaic for a modern air force, which dispensed with 'square-bashing' and all that 'hot air' years ago." This flight of fancy, of the possible reception of our Editorial in some quarters, is similar to views we have heard expressed more than once. It is a subject upon which many conflicting articles have been written. These have included authoritative articles upon "Leadership" by such eminent authorities as the late Chief of the Air Staff (Marshal of the Royal Air Force Sir John Slessor), and the late Chief of the Imperial General Staff (Field-Marshal Sir William Slim), but there have also been many views expressed by less experienced officers, and it is on account of these that we venture to comment upon suggestions for a revised or modern conception of discipline for air forces.

Is there any factual support for this suggestion to change the fundamental principles of the traditional discipline of our air forces? Is it "hot air"? or is there still a real need to maintain this vital quality in a modern air force?

Some change in the type of *disciplinary training* used for ancient forms of warfare have already taken place, but how far these changes can be allowed to develop with safety is a matter for speculation.

DISCIPLINE OF PAST AGES

It will be found by studying military history from 1600 to the South African War that, despite the general lower standard of intellect of the rank and file, the pattern of disciplinary training was similar in many respects to that of today.

The aim was identical, i.e., *To obtain willing obedience to all orders under all conditions.* The outstanding differences were that men were trained to move in unison in mass formations, and those formations to be moved in an orderly manner under the personal leadership in the field of their commander. Any reasoning was left to the officers who led them in battle. The product of long and endless drilling to achieve this was something in the nature of an "automaton." "Theirs not to reason why, theirs but to do or die," roughly sums up the situation. Yet even in those far-off days the tedious and seemingly endless drilling played but a small part in achieving willing obedience to orders under all conditions. Other factors played a more important part. The best soldiers were true patriots; they had *esprit de corps,* a great respect for their officers and (with the exception of mercenaries) a love for the cause for which they fought and for which they were willing to die if necessary. Neither was discipline based, as has often been suggested, upon fear of punishment, any more than it is today. In 1642 the Earl of Essex, addressing his army before Worcester, said:

"I shall desire all and every officer to endeavour by love and affable carriage to command his soldiers, since that which is done for fear is done unwillingly, and what is unwillingly attempted can never prosper."

To ensure that all the men were usefully employed was as essential then as it is today for the maintenance of discipline. This is borne out by the following extract from a seventeenth-century book on the duties of officers:

"He should be very careful to keep his soldiers in action, whereby idle expense

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of time (as drinking and playing) may be prevented, which usually ends in quarrelling and bloodshed."

Leadership was of a high standard and played a vital part in the equally high standard of discipline. There is ample proof in the military history of that period that officers were both respected and loved by their men. How was this achieved? It was by the officers' impartial justice, care of the men's personal comfort before their own, sharing their men's hardships, personal example of obedience to orders and sound leadership in action.

DISCIPLINE. TODAY'S AIR FORCES

Let us first be clear on what we wish to achieve by discipline under modern conditions. "Discipline is that quality which transforms a disorganized rabble into an efficient fighting force."

This means the change from chaos and disorder to a state of assured orderliness; from lack of control over large units, small units or even individuals, to complete permanent control over individuals and groups of individuals alike. Achieve this, and we can rest assured that plans for the air defence of any country would have ample chance of success.

In an air force, being a highly technical service, the standard of intelligence of all ranks is very high. There is no longer that attitude of mind of the rank and file of past ages, "Theirs not to reason why"; today the reasoning powers of the men, as well as those of the officers, are most active.

But no longer is it necessary to train men to move in unison in mass formations, with the possible exception of ceremonial occasions, for which men of high intelligence require but brief training. With such men there must of necessity be some change in the method of achieving discipline. There must be no form of training which has as its aim the production of "automatons," with the exception of raw recruits.

There is now greater need for increased care in issuing orders, whether verbal or written, and the absence of any unnecessary orders. "Order—counter-order—disorder" is to be avoided.

Unnecessary or badly worded orders in these days would invite suspicion that superiors were not fully competent, and this would be bad for discipline. But what is still essential is "Implicit obedience of *all* orders."

Suggestions have been made that, because fighter pilots and air crews are at times far removed from the immediate proximity of their operational commander, there is need for the revision of the form of disciplinary control, the inference has been that for air crew personnel there should be less insistence on rigid discipline. Nothing could be further from the truth.

There is, however, the need today to visualize certain conditions which might necessitate the change of original orders and require delegating subordinates under given circumstances to act on their own initiative, but if anything, the situation calls for an even higher sense of discipline than in days gone by.

CONCLUSION

After reviewing discipline of the past and considering what changes might be desirable to meet modern conditions, it is clear that the same *fundamental principles*, which made strict discipline necessary for fighting forces 300 years ago, are essential today.

Without a disciplined air force the defence of any country is insecure, and

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without implicit obedience to orders under all conditions by the highest to the lowliest member of an air force it cannot be termed a disciplined air force.

Discipline begins at the very top (i.e., the most senior officers) and percolates down through those at Command and Group Headquarters, through stations to the smallest unit or air crew. To permit disregard of any orders, be it in the matter of dress, saluting, Command, Group or unit orders, can do more harm than is perhaps realized; it can foster the idea today that some orders must be obeyed and that many others are just "hot air." When this begins, the rot has set in; let it spread and it can only be eradicated over a lengthy period and even then with the danger of resentment and discontent. Months of work by a sound station commander and first-class team of warrant and non-commissioned officers could be destroyed in as many hours among all officers and men, by thoughtlessness of a visiting superior officer who might, quite unwittingly, create the impression that he did not support the same high standard of discipline as the station commander. Uniformity on every station is essential, and any standard set must include implicit obedience of any orders issued or the immediate cancellation of orders no longer considered essential.

Finally, we suggest that there is no need to change the old fundamental principles of obtaining and maintaining discipline. Among the most important of these is personal example of seniors to subordinates, from the highest commander to the corporal, in the implicit obedience to Queen's Regulations or local orders; officers' personal interest in their men on the station, both on and off duty; care of their general welfare; joining in their sport and entertainment; sharing their men's discomforts, and establishing a reputation of integrity and impartial justice.

In the past, inspecting Generals used to judge the discipline of a unit by the smart turn-out of the guard, the unit's "offence reports" and "barrack damage reports"; these are no longer useful guides in an air force today, but the standard of discipline can as easily be assessed by the dress and bearing of its officers and men, their saluting and general behaviour both on and off duty.

Air forces are formed of a fine body of men; given leadership of the right kind and there is no limit to the heights of achievement to which they will rise. Foster a spirit of *esprit de corps* and patriotism, make abundantly clear the cause for which they might have to fight and then, as old Oliver Cromwell said three hundred years ago, we should have officers and men "who know what they fight for and love what they know," and like the old "Ironsides" they would be undefeatable.

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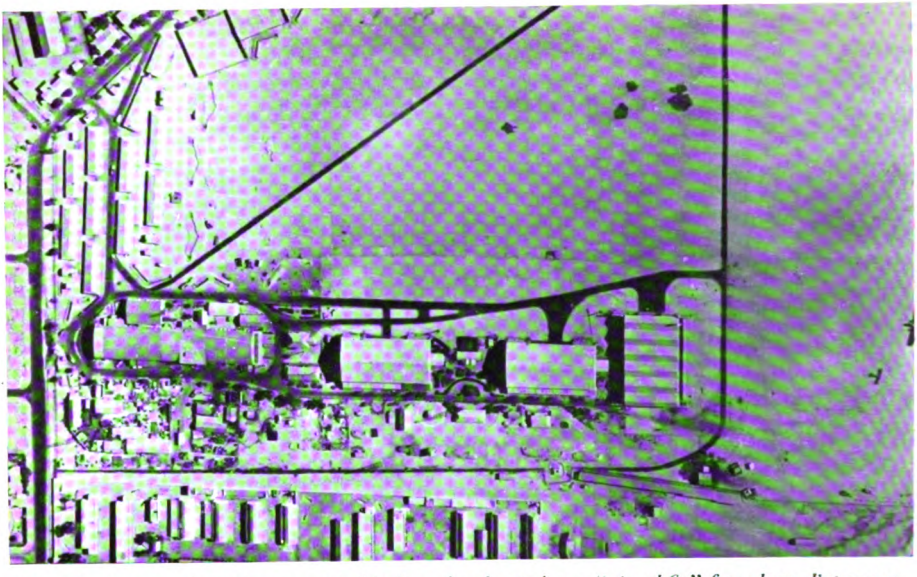
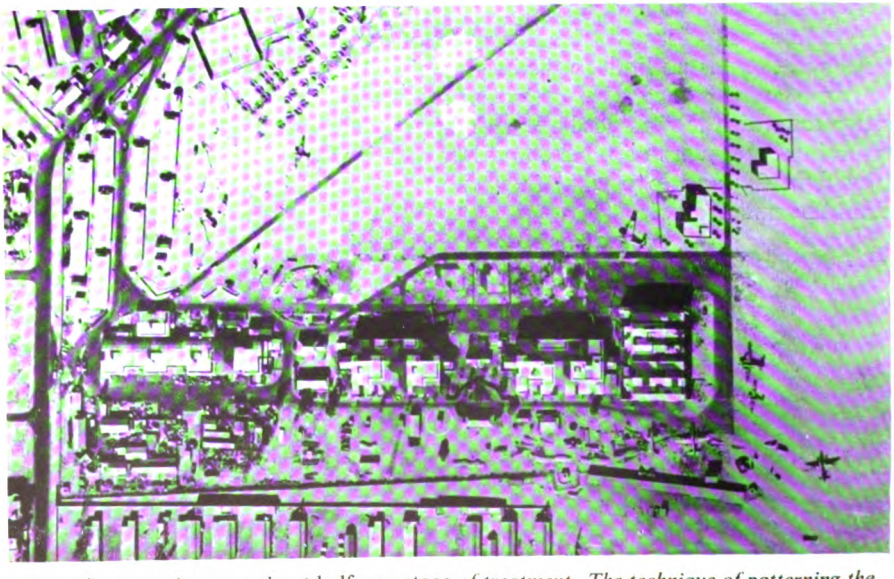


(A) *The four very large hangars sited in line ahead acted as a "visual fix" from long distances and the associated aprons and taxi-tracks made this corner still easier to pick up*



(B) *The same airport at* about half-way stage *of treatment. The technique of patterning the roof surfaces is noticeable. The solidity of the "houses," the density of the shadows and the extent to which the size and character of the hangars have been destroyed speak for themselves*

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THE CAMOUFLAGE OF AIRFIELDS IN THE MIDDLE EAST, 1941-42

By Geoffrey Barkas and John Hutton

LET it be confessed that the authors of this article are, or rather were, Army camouflage officers. And lest it appear strange and reprehensible to readers of this Quarterly that the Royal Air Force should have had recourse to the Pongos for the concealment of its own installations in the Middle East, let it be added that this was a case of *faute de mieux*. It so happened that the Army was the only one of the three fighting Services in that theatre to possess an establishment of trained camouflage specialists engaged whole-time on the task of controlling the visibility—and recognizability—of military plans, works and equipment.

Until the early summer of 1941 the prospect of serious or sustained air attack on base installations in Egypt and neighbouring regions appeared too remote to justify the diversion of scarce manpower and materials on large-scale schemes of protective camouflage in the rear areas. With the advent of Rommel and the first deep penetrations of the Afrika Korps, however, the situation was suddenly transformed. The threat of heavy air attacks upon our bases—and, among them, the R.A.F. airfields in the Delta, the Canal Zone, Palestine and, in due course, Syria—became real and concealment became an urgent operational requirement. Not unnaturally, in the circumstances, the R.A.F. sought advice and help from the Army's camouflage organization. And not unnaturally, for reasons of enlightened self-interest, the Army did what it could and continued so to do until victory at El Alamein lifted the threat once and for all.

The purpose of this article is to describe, quite briefly and in a non-technical way, some of the more interesting problems posed by this work and the lines along which they were tackled.

It is proper to stress at the outset that camouflage schemes which succeeded in 1941 and 1942 might well fail completely if repeated today. The contest between the camouflage man and the enemy's visual intelligence service never stands still. It resembles the ceaseless competition between the safe-maker and the safe-breaker. New weapons, new and more penetrating techniques of observation, call continually for re-assessment of the practicability and the ways and means of imposing a false but plausible picture upon the enemy. It must be remembered that in those days, almost twelve years ago, our work was not exposed to attack by pilotless aircraft, guided missiles or atom bombs. We had as yet no need to worry unduly about the magic eye of infra-red or of air-to-ground radar. It did not depress us unduly to know that our schemes could hardly hope to withstand the scrutiny of skilled interpreters of air photographs. We knew that even if a target had been correctly identified and accurately pinpointed from air photographs, a worth-while measure of protection could still be provided against the eye of the fallible human being in the enemy bomber—the man who had to pick out and be quite certain of his mark while still a considerable distance from it.

Our work on airfield protection began with a conference at which both sides sought common-sense answers to the simple questions which always have, and always must, lie at the root of every successful scheme of camouflage. What

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are we trying to hide or to display? What form of observation are we trying to deceive? At what range and from what viewpoint? How much manpower, material, transport and money can justifiably be spent?

The answer to the first question was quickly forthcoming. There were two main kinds of aerodrome for which the R.A.F. required protection. First, the great permanent airports which had been taken over for war, and which had gathered around them a great clutter of buildings, long regular rows of huts, administrative blocks, enormous north-light hangars and workshops and vast acreages of runway and apron—glaringly conspicuous from long distances no matter whether they stood in the bald desert, in the cultivation, or alongside the built-up fringes of town or city. Secondly, the purely war-time landing grounds consisting of two runways, usually X-shaped, and making an immense and eye-catching scar across the natural or man-made pattern of the landscape—particularly when, as often occurred, the landing ground cut boldly through the chequered pattern of farming land. There were, of course, associated disfigurements in both classes—perimeter taxi tracks and aircraft dispersal points, pens, and so on. But the major problems were the runways and aprons—and, above all, the huge hangars and workshops.

Up till now the R.A.F. had regarded effective concealment of their airfields as a hopeless proposition, mainly because of the jet-black shadows cast by hangars and other buildings. In fact, at the first meeting, the presiding Air Vice-Marshal said frankly that he did not believe that the shadows could ever be either "killed" or adequately distorted or imitated, at an acceptable cost.

At first sight there was indeed every justification for such doubts on the layman's part. Viewed from the air—and especially in Middle East conditions, under a blazing sun shining down on such brilliantly reflecting surfaces as concrete, tarmac or smooth sand—a natural shadow is the darkest object in any landscape. White paint applied on the shadow can do little or nothing to lighten it. The blackest paint applied to a smooth sunlit surface cannot approach the blackness of a real shadow, although some approximation to a shadow may be achieved by roughening the surface before painting, or by incorporating in the paint itself some grit or large enough grain to scatter the reflected sun or moon light and provide what is called "contained shadow." Nevertheless camouflage had given the problem some thought and was confident that, in theory at all events, an appreciable degree of confusion and a consequent shortening of the range of positive identification by an enemy bomb-aimer was attainable.

Quite understandably the Air Vice-Marshal regarded the first tentative suggestions for camouflage treatment exactly as Mark Twain described the Book of Genesis. He found them "interesting but steep." There were as yet in Middle East no complete examples of toning-down or deceptive patterning from which he could judge the efficacy of the tricks we had in mind, or the cost of applying them to the roof and sides of even one hangar—to say nothing of whole runways, aprons and the aggregations of buildings and significant features that made up a complete airfield. Very sensibly he decided that a pilot scheme on a relatively small scale should be carried out forthwith and larger decisions deferred until the result and the cost could be assessed.

The Pilot Scheme

The subject of the first test was a large workshop hangar on a permanent aerodrome in the Delta. The object of the exercise was to demonstrate what camouflage could do to reduce the range at which an approaching bomber could

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positively identify the building, and thus convert an easy target into a difficult one by lessening the risk of accurate bombing on first run-in.

Since the airport was closely adjoined by a residential area, here was an excellent chance to attempt the two-dimensional simulation of houses and their shadows by painting and "texturing" suitable shapes over the whole roof surface and thus "lose" the building in the general built-up pattern of the surroundings. And here also was a good opportunity of experimenting with methods of breaking-up or blanketing the jet black shadows of the hangar.

Many technical difficulties had to be overcome, not least the problem of simulating in two dimensions the shapes and shadows of houses on the differently inclined planes of a series of pitched roofs.

The splitting-up of the main shadow of the building was effected by stretching opaque netting from eaves to ground, and the blending of the hangar with its residential surroundings was further helped by continuing the two-dimensional pattern of small "houses" on the ground alongside by means of clinker sprayed with tar to create the illusion of shadows, and stones washed with cement slurry to provide the sunlit "roofs" and "walls."

Obviously this false pattern of small houses could never have foxed the air photograph interpreter, for the alignment of the imitation shadows with the real ones in the neighbourhood could have been plausible for only a few minutes every twenty-four hours. But, as previously stated, it was not the camera but only the eye of the man in the bomber that camouflage hoped to deceive.

As soon as the work was finished, the R.A.F. assessed its value by flying towards it at various heights and angles of light, by day and night. It is sufficient to say that on the strength of this pilot scheme the authorities were convinced that the results justified the effort and resources involved, and issued instructions to proceed at once with more comprehensive schemes, including, if possible, the treatment of whole airfields.

First Large-Scale Scheme for Runways, Aprons and Roofs

One of the first complete airports chosen for camouflage treatment stood not a million miles from Cairo, on the outskirts of a modern residential town. The ground was light-toned sand and on this reflecting area stood the usual vast pattern of buildings, runways, aprons and taxi-tracks—mostly tarmac. Some slight success had previously been achieved by "blinding" the tarmac with sand, but the improvement was partial and temporary. Under stress of weather and use, the sand soon wore thin and the tarmac surfaces soon began again to show nakedly through.

It was therefore decided to adopt, on the grand scale, the scheme of blending the conspicuous and significant areas of the airport back into their surroundings by means of the two-dimensional "houses" which had proved successful in the pilot scheme, plus some additional tricks; for instance, the simulation of avenues of trees alongside the taxi-tracks.

Photograph (A) shows an important and difficult corner of the airport in question. In their original untreated condition the four very large hangars sited in line ahead acted as a "visual fix" from long distances, and the associated aprons and taxi-tracks made this corner still easier to pick up.

Photograph (B) shows the same place at about the half-way stage of treatment. The improvement in the technique of patterning the roof surfaces is noticeable. The solidity of the "houses," the density of the shadows and the extent to which the size and character of the buildings have been destroyed speak for themselves.

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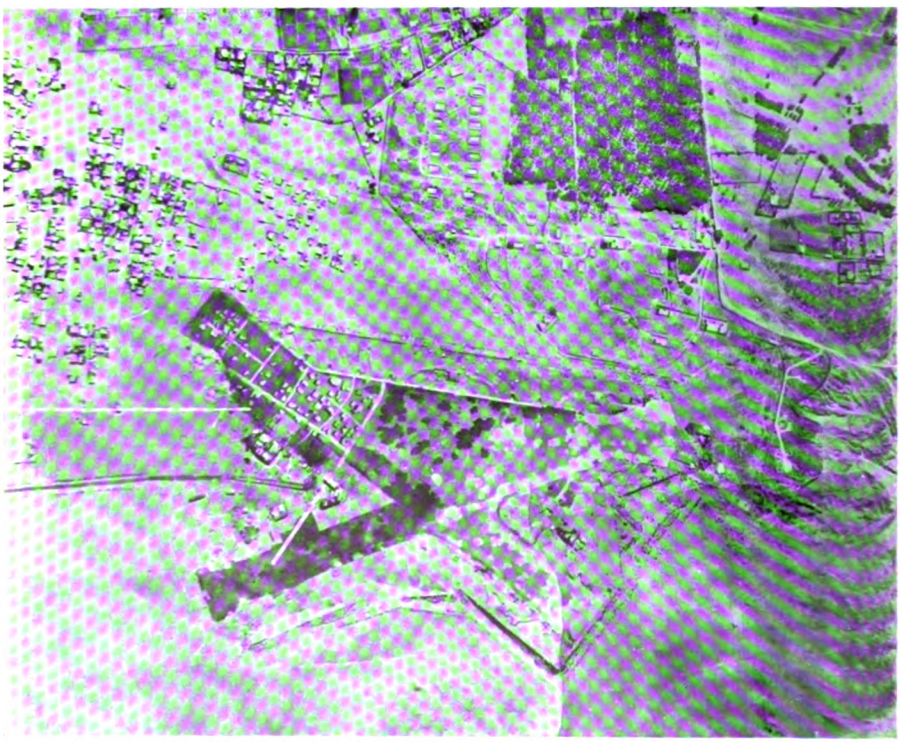
(C) *Another airport* before *camouflage treatment*



(D) *The same airport* after *camouflage treatment.* (*See opposite page*)

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The pattern on the hangars is being continued on the tarmac and some of the black taxi-tracks close to the buildings have been "killed," thus making the whole group less regular in appearance and much harder to pick out with certainty by an attacker. A start has also been made on creating the illusion of more buildings and rows of trees on the landing ground at the lower right-hand corner of the row of hangars.

It was not long before a tribute was paid to the success of the scheme. An aircraft carrying a party of high-ranking officers arrived over the airport, intending to land. It circled for some time and could be induced to touch down only after repeated assurances from the ground, because the pilot could not find any runway which did not appear to be hopelessly obstructed by buildings or trees.

Concealment of Airport Adjacent to Native Township

Photographs (C) and (D) show the before and after of another airport on which the camouflage objective was to blend the runways partly into the pattern of a neighbouring native quarter and partly into a background of sand and scrub. In this case the airfield was not heavily encumbered by large buildings, but it did possess a conspicuous visual fix in the unusual "V"-shaped administrative building at the angle between the two runways. Although photograph (D) was taken before completion, there can be no doubt that the visibility of the whole installation has already been greatly reduced at operating ranges.

This, in fact, was the aerodrome referred to in *The Camouflage Story*, where the R.A.F., while warmly congratulating us on the efficiency of the treatment, begged us kindly to suspend further camouflage work since their own accident rate due to anxious landings was showing signs of overtopping their battle casualties.

Airfields in Farming Country

A number of war-time airfields in Middle East had been constructed in country farmed by the Arabs. In such cases the runways cut immense and glaringly conspicuous scars across the man-made pattern of browns and greens.

If concealment was important enough to justify the price, there was no alternative but, first, to induce the Arabs to continue farming all the spare ground up to and between the runways; second, texture and paint the runways, aprons and taxi-tracks in tones, colours and patterns to match the real cultivation; and third, to do whatever was possible to treat any considerable buildings on or near the landing ground.

Photographs (E) and (F) show a particularly successful example of the treatment of such an aerodrome. The scheme is not complete and therefore not perfect. It will be seen that various tracks leading to dispersal points have not yet been fully dealt with. Nevertheless the blatancy of this particular installation has been very greatly reduced.

Marble Chipping Runways

The last kind of airfield which we can usefully mention is of the emergency landing ground type. There were many of these, hurriedly prepared to meet an expected tactical threat, consisting merely of two strips in the form of a broad "X" whose surfaces were composed of millions of chippings of locally quarried white marble each about the size of a pea. With the cussedness of the inanimate, most of these blazingly white landing grounds were sited in areas of red or deep brown soil, and stood out like chalked crosses on a blackboard.

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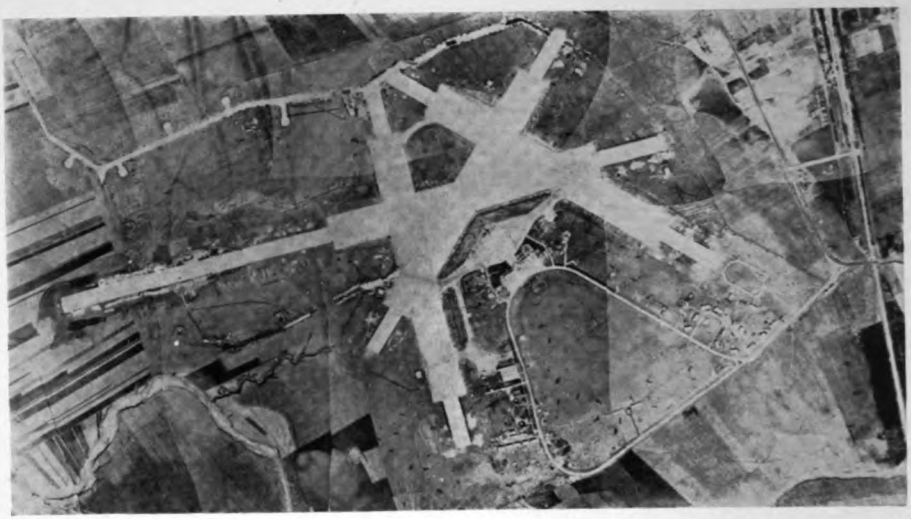
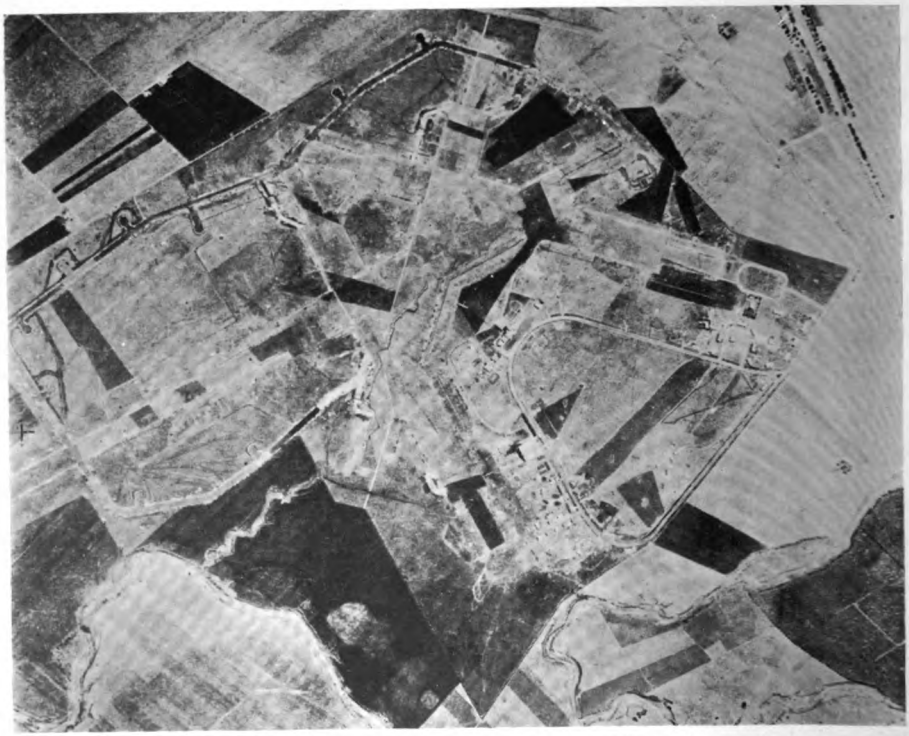


(E) *An airfield in farming country in the Middle East* before *camouflage*



(F) *The same airfield with camouflage commenced. Various tracks leading to dispersal points have not yet been dealt with.* (*See page* 117)

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At first nothing was scheduled to be done to these because there were so many of them and so little labour and materials available. However, one day there was a visit by members of the Air Staff from the United Kingdom who were horrified by the nakedness and staring appearance of these airfields, even at night, and a signal came through that the white crosses had to be killed somehow or other, as a matter of high priority.

The somewhat harassed Camouflage Officer in charge of the areas concerned (he was already working in four different countries) sat down to worry out how it could be done. Each chipping has at least four sides, perhaps seven or eight, and unless all these were painted every aircraft that landed, and every high wind, would tend to turn the chippings and expose the white sides. Dipping them in tanks of paint was not on, because they were already on the runways. In addition, there did not appear to be anything like enough paint or labour for the job.

There was, however, a large cement factory in one of the countries concerned and after some parley with officials this was commandeered and converted to the production of red-brown cement paint. It was fascinating to see the great white buildings changing gradually to brown as they churned out the paint and became coated with the coloured dust.

The R.A.F. officer in charge of labour smiled cynically when asked to provide thousands of workmen to do the painting. "What you want is women and children." So women and children it had to be. The paint, contained in forty-gallon drums, was loaded on to carts and spilled over the runways. Droves of mothers and offspring followed hotly with brooms, brushing and rolling the chippings over in the flood of paint, uttering queer cries and constantly rescuing their toddlers from total immersion under the gushing drums. This extraordinary scheme stopped suddenly for two hours in the middle of every day, to allow the women to go home and cook a meal for their men.

Techniques, Maintenance, Viewpoint, Behaviour

All sorts of materials were used to produce the dense blacks needed to create imitation shadows. On tarmac a mixture of tar and coal-dust was usually found effective. On sand a much coarser or deeper "texture" was needed. Clinker spread with tar was much employed; and on one occasion an admirable series of shadows was made by using a shipload of coffee beans which had been spoiled by seawater and blackened by fire.

The key to making successful two-dimensional "houses" on flat surfaces is to achieve the greatest possible exaggeration of the contrast between lit areas and shadowed areas. The contrast must usually be so great as to appear almost ludicrous at very low altitudes or to anyone traversing the pattern at ground level. It was the experience of most camouflage officers that their clients could only with difficulty be persuaded *not* to judge a scheme of concealment or display by standing in the middle of it.

Another mistaken attitude, frequently encountered, was a childlike faith that once the paint had gone on the airfield was camouflaged for ever, and that it provided a magic cloak which absolved the owners of the installation from any care in preserving the plausibility of the scheme. It had to be continually stressed that however successfully one might have disguised a hangar as a block of small private houses, the scheme would be somewhat compromised if twenty or thirty aircraft were parked in rows alongside. There was also, and probably always will be, much difficulty in persuading the authorities that painted schemes of

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camouflage require regular maintenance, particularly in regions like Middle East where airborne dust can so quickly carpet the ground.

Besides dealing with airfields the Army Camouflage Organization co-operated with the R.A.F. on many other problems of visual misinformation which can here only receive passing mention.

Methods of hiding walled dispersal pens were developed and successfully used at a few specially important sites, although the logistic difficulty of treating them by the hundred or thousand was never overcome.

Dummy airfields were made in several places, partly to deflect attack from real targets, and partly to confuse the enemies' appreciation of our intentions or strength. But since landing strips without signs of operational activity could not be expected to deceive the enemy, this work brought in its train the design and production of great numbers of associated dummies, collapsible and transportable, to represent huts, slit trenches, A.A. defences, dispersal points and, above all, dummy aircraft to dress the scene. Much was also done by way of decoy fires, and although these were inevitably very much less ambitious than the elaborate and lavishly equipped decoys in the United Kingdom, they were generally considered to have earned their keep.

What of the Future?

All the forms of camouflage described in this article were intended to provide answers to particular problems in the particular conditions of the Middle East campaign more than ten years ago. Would our scheme succeed today or tomorrow? As we have already said, it is quite conceivable that if exactly repeated in another war our methods of concealment and of display would be easily unmasked. Do the new weapons, tactical conditions, and techniques of observation mean that camouflage, in its proper sense of visual misinformation, is played out? In the opinion of the writers, it most certainly does not. No matter where or how the next war may be fought, the enemy will depend, to some considerable extent, for his tactical information upon things seen and things photographed. Provided that the camouflage man and the scientist have continuously studied the new methods of observation and developed practical counter-measures, and provided that the planners and the troops are aware of what camouflage can do and what it demands, it will be possible to deny vital visual information and 'sell" vital misinformation—at a price. It is to be hoped that the field forces in the next war are better prepared and equipped for the task than they were in 1939.

Editorial Note: Geoffrey Barkas, Director of Camouflage in Middle East Forces from the end of 1940 to the spring of 1943, is the author of "The Camouflage Story," published by Cassell and reviewed in our January, 1953, issue. His book gives a fascinating account of operational camouflage culminating in the great schemes of visual deception which helped to secure complete tactical surprise at El Alamein. John Hutton, well-known painter specializing in murals, served as a camouflage officer with Geoffrey Barkas in the Middle East and was responsible for the design and supervision of almost all the airfield camouflage carried out in that theatre. It has recently been announced that he will be responsible for an important part of the interior decoration of Coventry Cathedral.

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COLD AND NOT-SO-COLD WAR

By J. M. Spaight, C.B., C.B.E., LL.D.

THE LATE MR. STALIN ON COLD WAR

JUST before Christmas, 1952, a representative of the *New York Times* addressed to Mr. Stalin a number of questions relating to the international situation, among them an inquiry as to the sources of the existing tension. Mr. Stalin's reply to this particular question was: "Everywhere, and in everything, in which aggressive activities of the policy of the 'cold war' conducted against the Soviet Union manifest themselves." The implication was that the cold war was initiated and maintained by Russia's enemies. "Oh, wad some power the giftie gie us . . ." It is salutary to be reminded now and then of the other side's point of view, especially when it is that of a nation living in political purdah. Though one may suspect that Mr. Stalin's pronouncement was intended for domestic consumption, it has a lesson, nevertheless, for the western world. We think of the cold war as something peculiarly Russian, but its missiles do not start only from the east. It is a two-way traffic. The western world takes a hand in it too. What distinguishes the western from the eastern variety is that the former is really a cold war, while the latter can be found on examination to be not so very cold after all. It is interspersed with splashes from the hot tap. The west relies on propaganda, especially of the kind employed by the "Voice of America" and the foreign radio services of the B.B.C. The Marxists use the same technique and supplement it by making every session of the organs of the United Nations the occasion for propagating their gospel of international hate and ill-will. But they are not content with the war of words. They heat up the mixture when they see a suitable opportunity, and then there is dirty work at the cross-roads of the free nations. It occurs mostly at the outposts of civilization, but occasionally it is near the centre. The attempted strangulation of Berlin in 1948-49 came fairly close to the edge of shooting war.

THE RUSSIAN OBSESSION

To the Russians it is axiomatic, no doubt, that they have been the victims of a capitalist conspiracy ever since the last war ended. "The Russians suffer from persecution-mania," Bertrand Russell has said with a good deal of truth.[1] They have been simply defending themselves, they would say, in whatever they have done since 1945. Their policy of insulating themselves from the western world, of building up a cushioning layer of friendly States on their borders, of keeping the unfriendly States at arm's length, of making themselves difficult to deal with in their relations with nearly all countries—all this has been due at bottom to one cause: fear. It is not fear of war only that actuates their rulers; it is fear also of the effect upon the Russian people's loyalty to the existing regime of a too close acquaintance with the free nations' way of life. They try to shield their flock from contamination. Their bluster, their thrusting aggressiveness, their vilification of the capitalist world are only symptoms of an ill that is deep-seated, endemic and entirely in the nature of things in a despotic police State.

Unfortunately, and inevitably, the Russians' quest for security for themselves has had the effect of increasing the sense of insecurity of every nation against whose aggressive designs they have claimed to be merely safeguarding them-

[1] Bertrand Russell, *How Near is War?* 1952, p. 35.

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selves; for the safeguarding has taken a course remarkably like imperialistic expansion. "The Soviet quest for security," Mr. Dean Acheson said as long ago as 1946, "becomes identical with the desire for the establishment of a *Pax Sovietica* for the entire world."[2] Communism, its adherents would claim, and peace are synonymous; if the world is communized, the world will have universal peace. The fact that other nations refuse to buy peace at such a price is ignored. The Communists—and their fellow-travellers—in the still free world work tirelessly to convert their several electorates but with little effect on the voting. Yet they go on hopefully. "Communist Parties in all countries are seeking . . . to obtain power by 'Trojan Horse' tactics similar to those employed in countries which the Communists now control."[3] Where they have been successful they have had to threaten or actually to resort to violence, but sometimes the transference has been brought about without very much difficulty. An organized strike of workers will sometimes be all that is needed. Marching bands of plug-uglies with arms can sometimes send a weak Government scuttling to cover. In other instances there is nothing but civil war as an avenue to the desired revolution. Fortunately, there are nations left who think that freedom is worth fighting for to the last ditch.

THE TRUMAN DOCTRINE

The counter-revolution which saved the free world from being communized began to take shape in March, 1947. The warning signal for it was given, indeed, by Mr. Churchill a year earlier in his famous speech at Fulton, Missouri, on 5th April, 1946, when he spoke of the dangers of the "expansive and proselytsing tendencies of Russia and its Communist international organization." But it was President Truman's action in the following spring, when he asked Congress for aid for Greece and Turkey, then under strong Communist pressure and in danger of having their free institutions subverted, that effectively called a halt for the first time to Soviet expansionism. Besides Mr. Truman himself, four other eminent men were responsible for this notable reorientation of America's foreign policy. They were Mr. Arthur Vandenberg, Mr. James Forrestal, Mr. Dean Acheson and General George Marshall. They deserve the gratitude of the whole free world. What they did then stemmed the Red flood that threatened to submerge us all.

The "Truman Doctrine" which was then first formulated was, in its originator's words, "a frank recognition that totalitarian regimes imposed on free peoples, by direct or indirect aggressions, undermine the foundations of international peace and harm the security of the United States."[4] It has been expounded most forcibly by a distinguished official of the State Department, Mr. George F. Kennan, who was later for a short time American Ambassador at Moscow. He has described it as a "long-term, patient but firm and vigilant application of counter-force at a series of constantly shifting geographical and political points, corresponding to the shifts and manœuvres of Soviet policy.[5] It is essentially a plan for the checkmating of piece-meal, small-scale aggressions by appropriate action which is calculated not to lead to a general war. "It recognizes wars of

[2] Quoted in *Trends in Russian Foreign Policy Since World War I*, United States Government Printing Office, Washington, 1947, p. 53.
[3] R. N. C. Hunt, *The Theory and Practice of Communism*, 1950, p. 207.
[4] Quoted in *Major Problems of United States Foreign Policy, 1951-52*, Brookings Institution, Washington, 1951, p. 28.
[5] A. M. Schlesinger, Jun., and R. H. Rovere, *The General and the President*, 1952, pp. 210, 212.

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limited force for limited objectives, not the use of maximum force for the victory for which there is no substitute. . . . The object is not to destroy Communism everywhere, or the Soviet Union—which would involve an atomic holocaust—but to punish aggression when it occurs, while refusing to generalize from the individual case to the total war."[6]

PUSSYFOOT EXPANSION

"Containment" and "creation of situations of strength" were the keynotes of the Truman doctrine.[7] How far will they be continued by the Eisenhower administration? When Mr. John Foster Dulles, Secretary of State designate in the new administration, outlined his proposed policy to the Senate Foreign Relations Committee on 15th January, 1953, he said that "a policy of containment alone was bound to fail because the defensive never prevailed over the offensive." "We must keep alive the hope of liberation everywhere as the only way to end the terror which threatens the world." This, he said, could be done by methods that would not provoke war or premature rebellion; moral pressure and the weight of propaganda could roll back the iron curtain. His statement as a whole seemed to indicate that while the United States would intensify its cold war, it would not break away abruptly from the line followed by the old administration. Presumably the policy will still be to challenge and oppose the step-by-step advance of Communism in its encroachments upon the free world. To turn a blind eye to them, to ignore them and to act as if they had not happened, would be an ostrich policy for the democratic nations to adopt. Its result would be such an augmentation of international Communism's power that the balance would be turned dangerously against the non-Communist nations. A study group of the Royal Institute of International Affairs in a report of September, 1950, expressed the opinion that "the Soviet Government is confident of attaining the main aim of its foreign policy—and of the Communist Party—by political means. These include civil wars deliberately provoked by itself or an ally." The Soviet Government, the study group believed, was unlikely to launch an aggressive war in the manner of Hitler's attack on Poland and would proceed rather by the methods of cold war, but, it was added, "the Group are fully aware of the danger that miscalculation of the free world's will and capacity to resist these methods might bring the world to the brink of a general conflict." The report of the study group amounted to an endorsement of the principles of the Truman doctrine.[8] Those principles will impose themselves almost automatically upon General Eisenhower's administration even if in some non-vital respects they undergo some modifications.

THE KOREAN TEST

The great test of the doctrine came in 1950. In June of that year the North Korean Government, the Soviet Union's creation and creature, launched an attack upon South Korea. The North Koreans, being the aggressors, naturally had the advantage at first, and they were in any case more powerfully armed than the Southerners; the Kremlin had seen to that. They seemed likely to occupy the whole peninsula. What would the friends of South Korea do? What, in particular, would the most powerful of them, the United States, do? The answer was not long in coming. The United States would march to the sound of the guns.

[6] *Ibid.*, p. 213.
[7] John Fischer, *America's Master Plan*, 1951, p. 39.
[8] *Defence in the Cold War*, Chatham House, 1950, p. 11.

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It was a momentous decision which President Truman took when, on 27th June, 1950, he ordered the American Navy and Air Force to give cover and support to the South Korean Government, and the 7th United States Fleet to prevent any attack upon Formosa. It was a call to the powers who stood for the right to fight for the faith that was in them. That call was heeded by nearly a score of nations. The southward drive was halted, and though the struggle was protracted and disappointed those who expected a speedy termination of the fighting, the net result was a check for the forces of aggression and the success for the forces of peace.

FREDERIC THE GREAT AND STALIN

Korea was only one of a number of theatres in which the sinister hand of international Communism could be discerned moving behind the scenes and manipulating the puppets who did Moscow's dirty work. In Indo-China, Malaya the Philippines and Burma the thugs, bandits and terrorists, the self-styled nationalists and armies of liberation, who murdered and destroyed all and everything that stood in their way, were inspired and applauded, sometimes actively helped, by the Kremlin and its faithful disciple in Peking. History was repeating itself. There is in Macaulay's essay on Frederic the Great a famous passage describing the evil consequences that flowed from Frederic's aggression in the war of the Austrian Succession. "On the head of Frederic is all the blood which was shed in a war which raged during many years and in every quarter of the globe, the blood of the column of Fontenoy, the blood of the mountaineers who were slaughtered at Culloden. . . . In order that he might rob a neighbour whom he had promised to defend, black men fought on the coast of Coromandel, and red men scalped each other by the Great Lakes of North America." So, because the hideous gospel of Stalinist imperialism has to be spread throughout the world, men are dying in many lands today, while, unlike Frederic, the prime movers in the devil's work are careful themselves to remain in the background and to leave the slaughtering to others.

Neither the small wars of the outposts nor the cold war of propaganda would make much impression upon the world at large if it were not known that there was behind them a solid array of armed might which in the last resort might come into action. Russia and, now, China are very formidable military powers, disposing of forces which, on land at least, surpass very substantially those which the free nations could muster. The effectiveness of the cold war conducted by the Communists diminishes in proportion as the strength of the others grows. It began to be reduced when the Atlantic Pact was signed on 4th April, 1949, and the tempo of the reduction was accelerated after the Korean war began in June, 1950. The West was at last awake. That was the good that came out of the evil of the Korean aggression. The fourteen nations of the Pact have already created the nucleus of an international force, on land, at sea and in the air, which no other combinations of nations will lightly challenge. Apart from the indirect effect of that development upon Communism's cold war, the increase of the strength of the North Atlantic Alliance has served to lessen, but has not wholly removed, the danger of a third world war.

WHAT THE FUTURE HOLDS

The position in the summer of 1952 was stated in a Chatham House report to be that "N.A.T.O. has a covering force in Germany capable of a resolute, but not lengthy, fighting withdrawal against a Soviet attack. That force is sufficient to deal with an 'offensive by proxy' of the kind that took place in Korea in June.

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1950; that is to say, Western Germany is probably adequately defended against Eastern Germany and the Eastern Europeans without the direct participation of the Russians.'" Should Russia join in the war, the air power of the western allies would be brought fully into action and would help to lessen the odds against them. If the Russians tried to drive not only to the west but southward toward the Persian Gulf as well, the three Turkish field armies—one near Erzerum, one in Thrace, and one, which could be switched in either direction, on the Anatolian plateau—should be able to delay the Red advance until the Allies' bombers could strike at Batu, Batoum and the railways serving the Caucasian oil centre. It is the vulnerability of that region that is probably the weakest chink in Russia's armour. It may be there that an Armageddon of the air will be fought some day. On its issue will depend whether Russia will or will not continue to be a first-class power or will begin the descent which was the fate of Spain, whether she will or will not be able still to hold over other nations the menace of the armed might which gives teeth to her cold war, and whether she will cease or not to count in the community of nations as a potential wager of wars of any kind, large or small, direct or indirect.

Because the stakes are so great and the penalty for failure would be so heavy, she will hesitate to attempt the great gamble of a third world war. It was no idle threat which President Truman uttered when, in his message to Congress on the State of the Union on 7th January, 1953, he warned Mr. Stalin that "war cannot now be a stage in the development of anything save ruin for your regime and your homeland." The Russian leaders must know that, whatever successes they achieved at the start, they would be ground to powder in the end by the relentless mills of America's war potential. They hate America bitterly, no doubt—it is a compliment to America—but do they hate her to the point of saying "I'll swing for you"? One doubts it. They will probably prefer to continue to wage their special brand of cold war. The result will be unpleasant for the rest of us, but then Russian Communists are particularly unpleasant people. Their small wars-by-proxy are nasty affairs but they are not as bad as a war of principals would be. As regards the other part of their cold war, the propaganda, the free nations should be in a position to give as much as they get. It is up to them, as the Editorial of this journal pointed out in the last issue, to show that "the democracies have a better ideology than Communism to offer." If we could get that truth effectively through the sound barrier of the iron curtain it might have important consequences in time.

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[1] *Atlantic Alliance: N.A.T.O.'s Role in the Free World*, Chatham House, 1952, p. 68.

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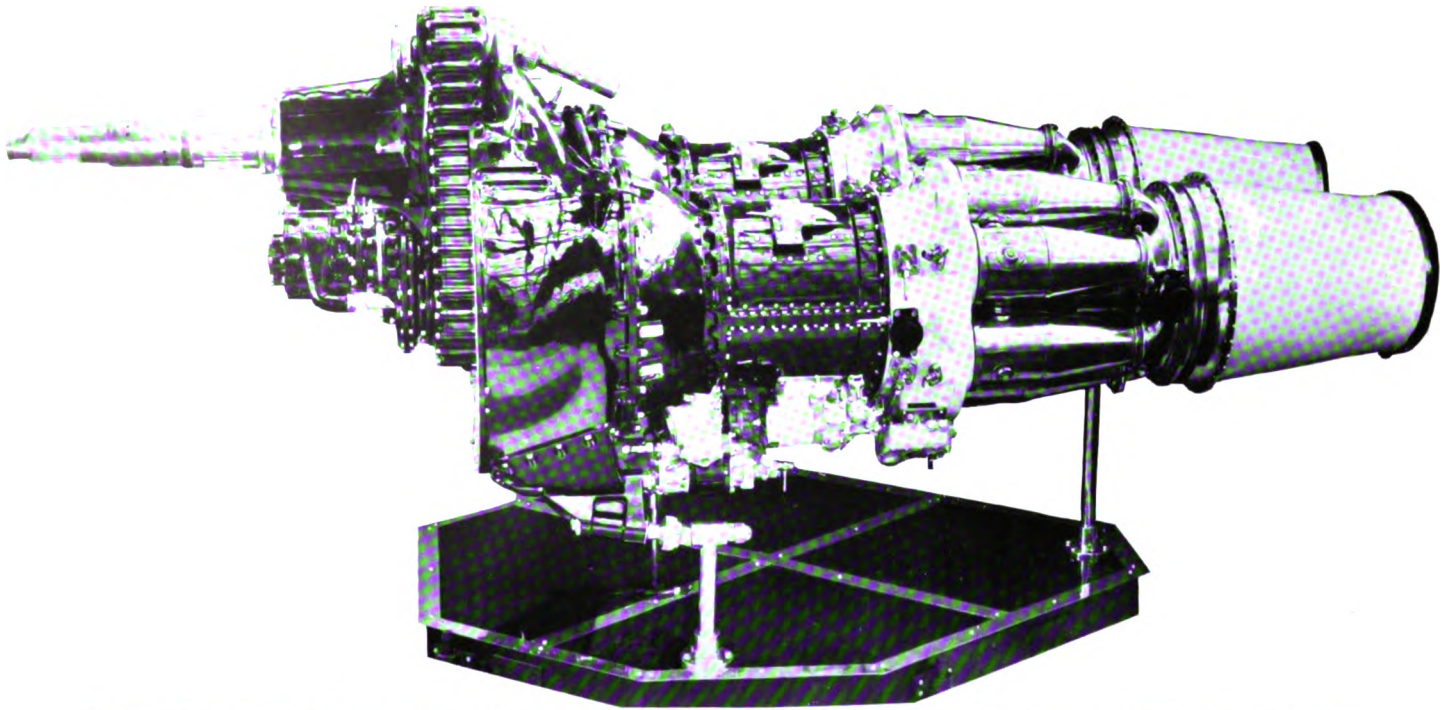

The Armstrong Siddeley Double Mamba turboprop, two Mamba engines side by side, each driving its own co-axially mounted propeller. Produces over 2,900 h.p.

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EVOLUTION OF THE "DOUBLE ENGINE"

By John W. R. Taylor

FIFTY years ago the Wright Brothers realized the centuries-old dream of powered flight; but not until they had built their own special aero-engine. And since that time the pace of aviation progress has been set by the achievements of engine manufacturers.

Availability of the splendid little Gnome rotary made possible in 1913 the Sopwith Tabloid and Avro 504, pioneers of the whole concept of fast, safe fighter and training aircraft. Within six more years, under the impetus of war, British air power had developed into a formidable offensive weapon, shaped around the Rolls-Royce Falcon and Eagle liquid-cooled in-line engines.

Performance and pay-load were the twin benefits sought by designers of 1914-18 aircraft, because there was no such thing as multi-engine safety at that time. Indeed, although Alcock and Whitten Brown used a twin-engined Vimy for the first successful Atlantic crossing in 1919, they were no better off mechanically than Hawker in his single-engined aircraft, because the heavily laden Vimy could never have maintained height if one of its engines had failed. They merely had twice as many engines to go wrong!

The necessity of using twin engines for high performance and load-carrying persisted through the '20s and '30s, as did the fallacy, in most cases, of "twin-engine safety." Output of individual engines soared to more than 1,000 h.p. in the Merlin, but still designers called for more and more power, to take full advantage of the new "clean" cantilever all-metal monoplane formula, complete with refinements like retractable undercarriages and enclosed cockpits and gun-turrets.

CONCEPT OF THE "DOUBLE ENGINE"

Then one day a member of the design staff of The Fairey Aviation Company had a bright idea. Instead of fitting two separate wing-mounted engines, he argued, why not combine two engines into a single power plant, driving a pair of co-axial, contra-rotating propellers? In this way, the power of twin engines could be combined with the aerodynamic advantages of a single installation. Furthermore, if each engine were geared to drive its own propeller, completely independent of the other engine and propeller, failure of one engine in flight would not produce the handling difficulties which result from asymmetric power in an orthodox "twin."

The idea looked so attractive that Fairey's began at once to design and build a "Siamese Twin" engine of the type suggested. The Air Ministry was considering at that time the broad specification of a fighter to replace the Hurricane; and this called for an engine at least twice as powerful as the Merlin. So Fairey's set themselves the task of developing not only a revolutionary engine of very high power, but one which could be mass-produced easily by semi-skilled labour under the "shadow" factory production scheme.

In due course, therefore, the Air Ministry had the choice of three new engines for its Hurricane replacement—the Rolls-Royce Exe, which was basically two "V" engines combined to form an "X" in section; the Napier Sabre, with four banks of six cylinders arranged in "H" form; and the Fairey P.24, with two vertically-opposed twelve-cylinder banks, mounted on a common crankcase but able to operate completely independently of each other.

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The Air Ministry decided in favour of the established engine-builders, and it was the Sabre which eventually powered the Typhoon fighter-bomber.

Undeterred, Fairey's pressed on with the P.24 and flight-tested it for the first time in a modified Battle day bomber on 30th June, 1939. They found that it developed a maximum of 2,240 h.p. at 3,000 r.p.m. at sea level. Two different P.24 engines were fitted in this particular airframe, which completed a total of 86 hours 50 minutes flying time in the hands of Chris Staniland, F. H. Dixon and visiting Service pilots, before the engines were shipped to America on 5th December, 1941, two days before Pearl Harbour.

There they were flight-tested in American airframes, bringing the P.24's total flying hours to around 250. The results were so impressive that the engine might well have gone into mass-production in the States had not the U.S.A.A.F. decided to concentrate almost entirely on air-cooled radials.

As it was, the whole concept of the "double engine" was forgotten until after the war, when it was revived in a new form and for a very different reason.

INFLUENCE OF JET PROPULSION

During the intervening years the engine makers had pulled a brand new trick out of the hat in the form of jet propulsion. Their first production turbojets were not particularly powerful, and even with two of them fitted the early Meteors were little faster than piston-engined fighters. But it was obviously only a matter of time before jet-engines would develop fantastic power, far beyond that of orthodox piston engines.

Chief drawback was their high rate of fuel consumption, which could not be reduced by throttling back as in a piston engine, because gas turbines operate most efficiently and economically at or near their maximum revs. So when Fairey's began to consider the basic design for a new carrier-based strike aircraft in 1945, their Chief Designer, Mr. H. E. Chaplin, still favoured the use of piston engines. He proposed mounting two Merlins in the fuselage in tandem, with the aft engine higher than the forward one, and each coupled through a gearbox to one half of a contra-rotating, co-axial propeller.

In this way he met the demand for higher performance, notably during deck take-off, without incurring the drag penalties of an orthodox twin-engine installation. Satisfactory endurance was assured because either of the two engines could be stopped during cruising flight to conserve fuel; and the pilot was seated above the forward engine, giving him an unrivalled field of vision for over-water reconnaissance. Extensive calculations proved conclusively that this "double engine" arrangement gave better all-round performance than any single contemporary gas-turbine, and Fairey's were awarded an official contract to fit their Spearfish reconnaissance-bomber experimentally with a twin Merlin power plant of the type proposed.

It was obvious even then, however, that the Admiralty was becoming more and more anxious to use gas-turbines exclusively for its future operational aircraft. So Mr. Chaplin next looked into the possibility of using a piston engine in the nose of his project and a turbojet in the tail—an arrangement that had found favour in America. But it offered few advantages. Use of both engines gave the required power for take-off; but two different types of fuel were needed (at that time) and the high consumption of the jet prevented its continuous use as an alternative to the piston engine. So the twin Merlin still looked best.

Not until the possibility was considered of replacing the two Merlins by two small propeller-turbines in a similar staggered power installation, using co-axial propellers, was a way found to better the piston engines. By that time, Fairey's

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had received the new GR.17/45 specification for a carrier-based general reconnaissance bomber, and it was while studying this that Mr. Chaplin had the idea of mounting twin turbines side by side to form a "double engine." He still had the strike aircraft principally in mind when he persuaded Rolls-Royce to develop a double power plant using two Tweeds, which were then proposed to power the big Princess flying boat. But before long both the Tweed and the strike project were dropped; so Fairey's asked Armstrong Siddeley to look into the possibility of mounting a pair of their small Mamba propeller-turbines side by side in a single installation, driving co-axial propellers. The result in due course was the Double Mamba.

THE DOUBLE MAMBA

Availability of this engine enabled Fairey designers to meet with their Gannet aircraft every requirement of the GR.17/45 specification, even when it was later changed to cover the exacting demands of hunting and killing *schnorkel*-equipped submarines. It proved small enough to go under the cockpits and forward of the bomb-bay of a comparatively small aeroplane; powerful enough to lift the Gannet quickly clear of the deck of a light fleet carrier; and economical enough to guarantee a satisfactory cruising endurance on over-water reconnaissance.

The Double Mamba consists basically of two single engines, each geared to drive its own individual propeller, quite independently of the other engine and propeller. This is a very different proposition to a normal coupled engine installation, as seen in the Princess flying boat, where two engines are simply coupled together to drive a common propeller, which may or may not be contra-rotating.

Twin-engined security with a single installation is a fundamental benefit with a power plant of this type. Satisfactory endurance is guaranteed by ability to shut off one engine and feather its propeller in flight; and, of course, the contra-rotating propellers eliminate all danger of swing on take-off.

The version of the Double Mamba which will be used in production Gannets is the ASMD.3, consisting basically of two ASMA.5 single Mambas. It develops 2,920 shaft horse-power, plus 535 lb. jet thrust, for take-off, which is equivalent to 3,125 estimated horse-power. Its corresponding fuel consumption is 274 gal./hr., which represents .70 lb./e.h.p./hr. It is 102 in. long, 52.8 in. wide, 45.25 in. high and weighs only 2,100 lb. dry.

Air is delivered to each engine through a cast light alloy intake duct which has a kidney-shaped entry. The cross-section of the duct changes to an annular form at the entry to the axial compressor of each separate engine. From there back the cycle of operation in each engine is quite orthodox. The air is rammed into the ten-stage compressor and delivered from there under pressure to six interconnected straight-through flow vapourizing type combustion chambers. There it is mixed with fuel from four jets in each chamber, the mixture is ignited, and the escaping gases drive a three-stage turbine which provides motive power for the compressor, propeller and engine auxiliaries. After driving the turbine, the exhaust gases are ejected through a propelling nozzle to produce the supplementary jet-thrust.

Each half of the Double Mamba has its own fuel, lubrication and control system, and it can run on virtually any type of fuel, including Admiralty Diesel oil. The advantages of this are obvious. It eliminates both the need for separate storage containers for specialized aviation fuel aboard ship and the ever-present hazard of carrying tanks of high-octane aviation spirit into combat. In addition, the higher flash point of such fuel, or even kerosene, means that in the event of a

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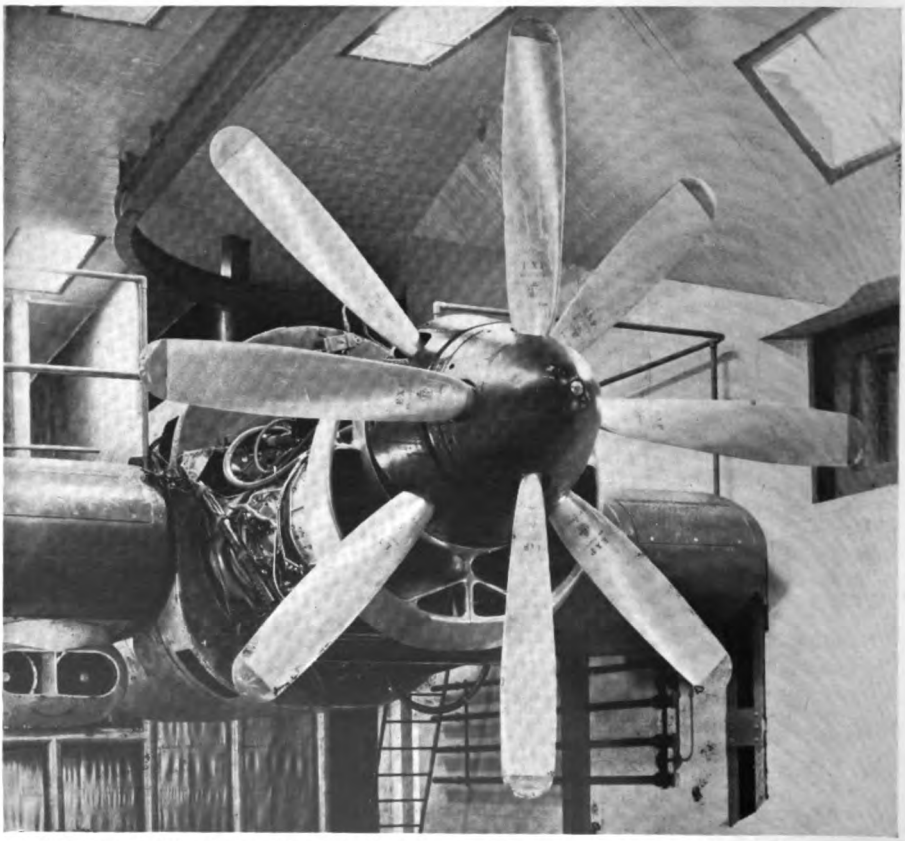
[Photo: Charles E. Brown

A Gannet cruising with one half of its Double Mamba switched off to give more endurance



The Double Mamba consists basically of two single engines, each geared to drive its own individual propeller, quite independent of the other engine and propeller

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crashing-landing on deck or ashore the danger of an immediate outbreak of fire is much reduced compared with piston-engined aircraft.

OPERATIONAL FEATURES

The unique layout of the Double Mamba has other advantages to offer besides twin-engine safety, single-engine drag and single-engine cruise fuel economy. For example, the mere fact that during most of each flight only one engine is running means that the "life" of the complete unit is prolonged considerably. A comparable piston engine, however much it is throttled back, continues to expend the available "life" of its moving parts, all of which must keep moving all the time. The only way it could rival the Double Mamba in this respect would be in the impossible condition of having, say, only half the crankshaft turning, or only half of its valves operating. For the same reason, the number of flying hours between overhauls is prolonged—a useful bonus to add to the fact that jets as a whole require only about half the maintenance man-hours per flying hour needed by a piston engine.

Similarly, the typical smooth running of the gas-turbine reduces vibration, cause of some eighty per cent. of normal instrument unserviceability. This is particularly important in the case of aircraft like the Gannet, which are packed with an incredible variety of delicate radio, radar and engine instruments. Likewise, the low noise level of the Double Mamba, especially inside the aircraft, reduces considerably wear and tear on its crew during long patrols.

Nor is the Double Mamba limited in operational versatility compared with piston engines. Admittedly its power output drops off in hot climates, just as does the power of a piston engine, but rather more quickly. However, this loss can be largely restored by use of water-methanol injection, which is being developed as a standard installation. At the other extreme, under arctic conditions, the power output is appreciably increased, and experience has shown that the Double Mamba will start without oil dilution or any other special precaution with the oil at -15° or -20° C. Use of special oil should enable starts to be made down to -40° C.

Even in dirt- or sand-laden atmosphere, the engine should continue to operate efficiently for reasonable periods. The chief danger is erosion of the compressor or turbine blades; but during one test about 35 lb. of sand was shovelled into a Mamba engine with light alloy compressor blades, without any unpleasant results. The steel compressor blades fitted to all current production engines offer still greater durability.

Finally, night operations with the Double Mamba-equipped Gannet will present none of the flame-damping problems encountered with piston-engined aircraft, and which invariably resulted in loss of view, loss of engine power and increased drag. The orifices of the curved jet exhaust pipes are far enough from the engine and flush enough with the fuselage side to prevent any glow from inside the engine being visible from behind the aircraft.

There is little doubt, therefore, of the quality of the Double Mamba, or of the operational efficiency and versatility of the Gannet, in which it is fitted. Together they offer the finest solution yet found to the menace of the modern, high-speed *schnorkelling* submarine, because they give the Royal Navy the means of finding and killing U-boats in the only place where they are dangerous —within striking distance of the convoys upon whose safety Britain's fate depends in war.

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[Admiralty Photograph

H.M.S. "Unicorn" (Captain H. S. Hopkins, C.B.E., R.N.) entering Kure, Japan

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BRITISH AIRCRAFT CARRIERS IN KOREAN WATERS

By Rear-Admiral H. E. Horan, C.B., D.S.C., R.N.

HOSTILITIES broke out in Korea in June, 1950. Since that date the Royal and Australian Navies have between then maintained a light fleet carrier operating in Korean waters and throughout this time these ships have been supported by a maintenance and replenishment carrier, H.M.S. *Unicorn*.

So far the carriers employed have been Her Majesty's Ships *Triumph, Theseus, Glory* and *Ocean* and Her Majesty's Australian Ship *Sydney*. Perhaps it would be of interest to chronicle some of the doings of the aircraft and their crews so that the part played by them in what, at the moment, appears to be an interminable war may not pass unnoticed.

On the outbreak of hostilities the *Triumph* found herself in the Tsu Shima Straits on her way south to Singapore to refit and give leave. A signal was received from the Admiralty putting her at the disposal of the Supreme United Nations Commander. Within twenty-four hours of the receipt of this the *Triumph* reported ready for duty to the United States Admiral commanding the naval forces in Japanese waters. Thus it happened that on 3rd July, only eight days after she had been cruising peacefully off the coast of Japan, she was flying off "strikes" over enemy-held territory. From then onwards the *Triumph* worked with the United States 7th Fleet until the arrival of additional United States carriers at the beginning of August allowed her to be released to join the British Commonwealth Forces blockading the west coast of Korea.

In September, 1950, we find the *Triumph* taking part in the Inchon landings. This remarkable operation mounted in such a short space of time will long be remembered. Aircraft were required for support of the landings and the *Triumph* did her bit. Bombardments and "air strikes" were constantly called for, and it is gratifying to recall that on 27th September Rear-Admiral W. G. Andrewes, commanding the Commonwealth Naval Forces, received the "Silver Star," as a recognition of the work of his forces, from the hands of Admiral Struble, U.S.N. During the fourteen days that the ships were covering the Inchon landings the aircraft from the *Triumph* made 112 sorties over an area of 250,000 square miles.

One of the best stories told during the Inchon operations was when one of the *Triumph's* aircraft was spotting for a bombardment by H.M.S. *Jamaica*. The spotter was asked if he could see the target. He replied: "No. Obscured by smoke." A relief spotting aircraft cut in with the remark: "Target plainly visible passing me at 6,000 feet."

The *Theseus* relieved the *Triumph* on 8th October, 1950. With her came the bad winter weather. Gales, fog and snow were a matter of routine five days out of seven.

However, her aircraft flew as many as fifty to sixty sorties a day in support of the ground forces. During a period of three weeks in December 650 sorties were flown and it was during the month of January, 1951, that the 2,000th sortie during the Korean operations was logged. The "bag" during January included 190 buildings occupied by the enemy troops, 32 railway bridges, 8 tunnels and 5 power-stations.

Nothing spectacular occurred during the months of February and March, 1951, but on 1st April the *Theseus* logged her 3,000th sortie since joining the fleet in October. On leaving for home on 19th April her aircraft had made 4,446 sorties and on reconnaissance duties had covered an area of more than

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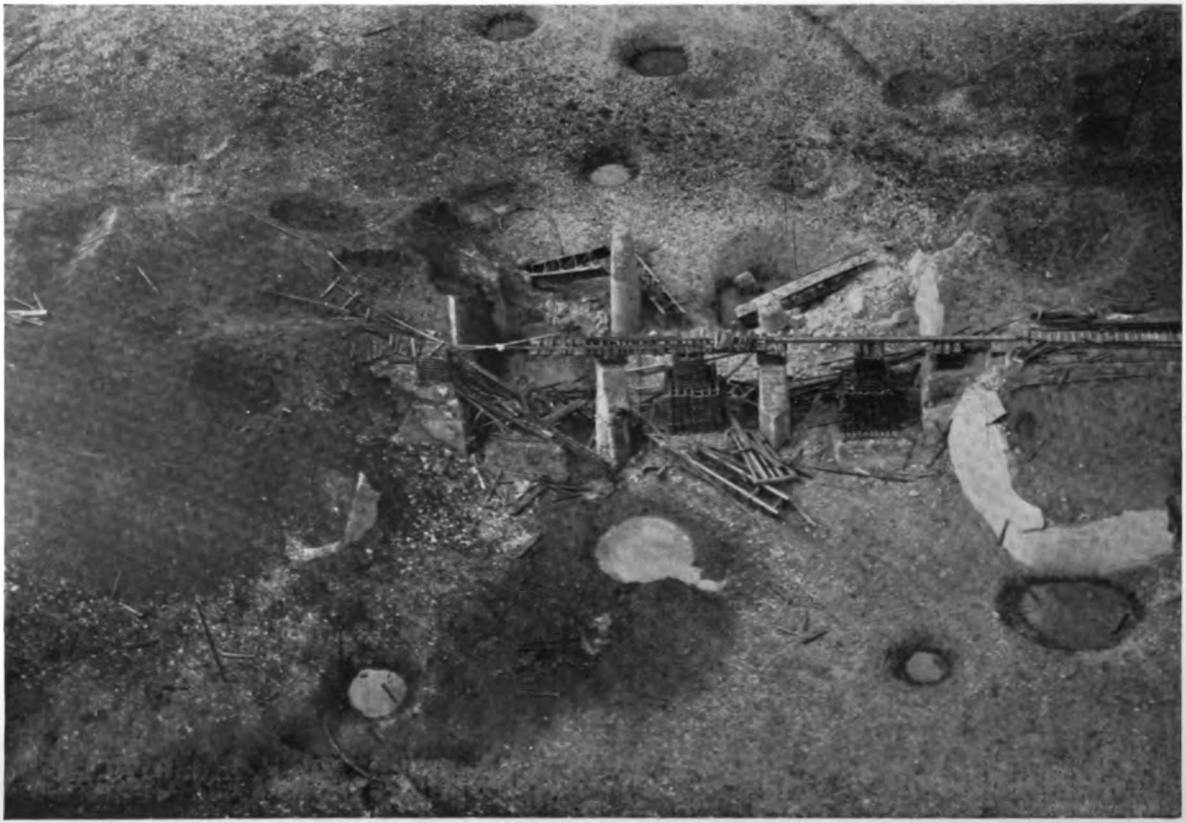

[*Admiralty Photograph*

Rail Bridge north of Sariwon destroyed by Fireflies from H.M.S. "Theseus"

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23 million square miles. This was an achievement to be proud of under the bad weather conditions and intense cold experienced during the winter months.

During the final stages of her operations the enemy "flak" increased in intensity, but, thanks to helicopter rescues, casualties were confined to one presumed killed and one injured.

Before she left for home Vice-Admiral Joy, U.S.N., commanding the naval forces in the Far East, made the following signal: "The *Theseus* and embarked airmen have set high standards for all aircraft carriers. . . . We have admired your quiet and confident way of always doing more than the schedule called for. It has been a privilege to have such a fine unit share this campaign with us. Well done! Good luck! God speed on your homeward voyage."

The *Glory* relieved the *Theseus* at the end of April, 1951, and put in 1,000 sorties in her first month's operating. This in spite of much fog and drizzle which is common in this part of the world at this time of year.

But in June and July the summer weather and longer days made more flying possible. During this period the log shows that the 2,000th deck landing since leaving England in January took place. Also we find Sea Fury aircraft from the ship flying from the west to the east coast of Korea to give support to the South Korean troops operating there.

To mark the first anniversary of the outbreak of the Korean war, aircraft of the 14th Carrier Air Group from the *Glory* attacked along almost the whole length of the battle line. Perhaps the most interesting "strike" was when Fireflies using 1,000 lb. bombs cut the railway line near Sariwon in two places.

The truce talks began in July, 1951, but these in no way interfered with the operations of the carrier-borne aircraft, which went on as usual. The typhoon season started in August and one of these—known as "Marge"—made its appearance. This necessitated withdrawing all the ships on the west coast until the menace had passed. Operations were interrupted until 25th August—a great relief to the enemy.

At the end of September, 1951, the *Glory* was relieved by H.M.A.S. *Sydney*, and the former went to the latter's home town to refit and give leave.

Some final figures of the ammunition expended by the *Glory* are of interest: Bombs, 1,514; rockets, 9,240; cannon shell, 573,000. This was achieved in 2,892 sorties.

The *Sydney* at once set about following in the footsteps of her predecessors. Her advent was historic; it was the first time that a Dominion aircraft carrier had gone into action. She did this first on 4th October, 1951, and seven days after that set up the "best ever" record to date for a light fleet carrier by flying eighty-nine sorties in one day's operations and totalling 147 in two days. This was done on the east coast and the targets were mainly built-up areas which sheltered troops and supplies. One of the most satisfactory aspects of these two days was the very high standard of bombardment spotting by her aircraft which was commented on particularly by the captain of the U.S.S. *New Jersey*.

On Trafalgar Day, 1951, we find the *Sydney* back on the west coast, and she celebrated the occasion by a highly successful "strike" of Sea Furies against a gathering of junks in the area south-east of the Yalu estuary which was posing a threat of invasion to islands in the occupation of friendly forces. Close support was also provided for the Royal Australian Regiment—a popular task. Fireflies concentrated on bridge "busting" and, having got their eyes in, had considerable success.

During November, 1951, the *Sydney*, operating on the west coast, flew her

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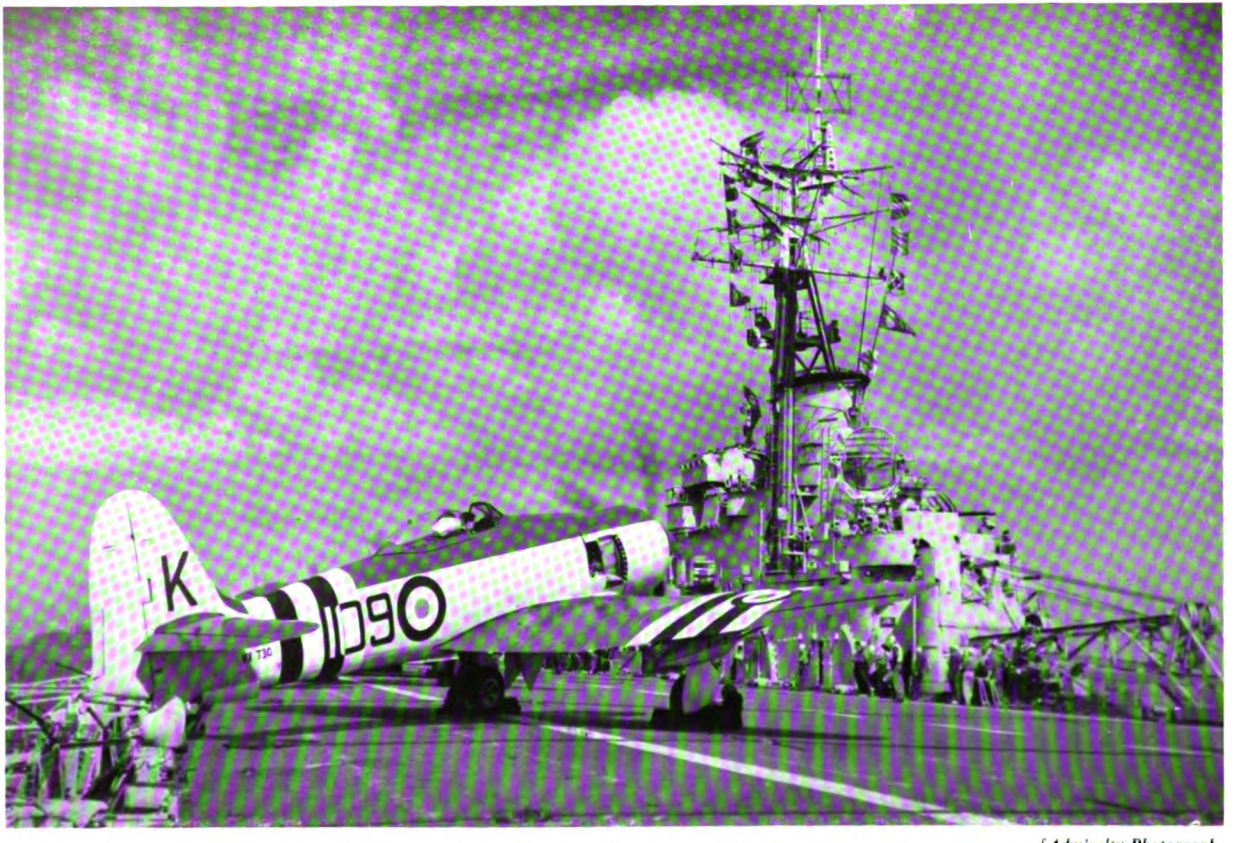

[*Admiralty Photograph*

A Sea Fury being warmed up on the flight deck of H.M.A.S. "Sydney" when serving in Korean Waters

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1,000th operational sortie when attacking enemy lines of supply and communications.

Now the winter closed in with its intense cold, fogs and gales. But throughout this time we find the aircraft still operating whenever they had a chance to do so. An example of this was when a co-ordinated air, gun and rocket "strike" was made against Hungnam—an important industrial and communications centre 100 miles north of the 38th parallel on the east coast. During these two days over 200 tons of high explosive fell on the target and the *Sydney's* aircraft made more than 100 sorties. This was in the face of high seas, gales and snowstorms.

Towards the end of the year the *Sydney* returned to harbour after one patrol off the west coast when she flew 385 sorties against enemy targets with a daily average of well over fifty. Following this effort, in real arctic weather she carried out a patrol when her 2,000th sortie was flown. Her Fireflies were engaged in attacking enemy rail transport, bridges and tunnels. The "bag" included ten bridges destroyed and three damaged.

After her refit in Sydney the *Glory* returned to the war zone and on 26th January, 1952, relieved the *Sydney*. Her first period of operations was favoured by good flying weather and she was able to show that she had lost none of her previous skill, although she had a considerable proportion of new pilots on board. In fact, in one day's flying in March, 1952, her aircraft flew 105 sorties of normal duration. This brought forth a signal from the Fifth Sea Lord: "Congratulations on your fine century."

In dawn-to-dusk sorties the aircraft silenced enemy gun positions, straffed invasion craft and damaged a boat yard. They dropped seventy bombs and fired over 400 rockets at targets which included an enemy troop headquarters and store houses. At one time every aircraft in the *Glory*, except one previously damaged, was airborne. All aircraft and pilots flew three normal full-length sorties during the day and some even completed four. This was a triumph of organization in which the whole ship's company shared, particularly the "deck handlers" and technical crews.

About this time—April, 1952—the *Glory's* two spells in the war zone had brought her number of sorties flown to 4,000 and in twelve patrols she had steamed 77,000 miles.

In a subsequent patrol Sea Fury aircraft from the *Glory* were armed with bombs instead of rockets. The result showed that the Sea Fury is a successful dive bomber and that the type of target on the west coast can be hit harder by a bomb than by a rocket.

By early May, 1952, the *Glory* had completed her task and was relieved by the *Ocean*. Before dealing with the latter it is well to record what the former did since leaving the United Kingdom in January, 1951, she had steamed 85,000 miles, made over 6,000 launchings, her aircraft had hit the enemy with nearly 1,000,000 cannon shell, 14,000 rockets and well over 3,000 bombs. This was accomplished in 4,835 operational sorties—a total of 11,860 flying hours. In 4,838 deck landings there were only thirteen accidents.

On taking over from the *Glory* the *Ocean* flew a remarkable high sortie ratio and soon bettered the records of all her predecessors. In one day the pilots of her two squadrons flew a total of 123 sorties against enemy-held positions. At one period every aircraft in the ship was airborne. In this effort seventy-two bombs were dropped and 456 rockets were fired.

The squadrons embarked in the *Ocean* were 802 and 825, and these have been awarded the Boyd Trophy for 1952. This trophy is given annually for the most outstanding feat of aviation in the Royal Navy. It will be held by the *Ocean*

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from which the aircraft flew against targets in Korea from May to October, 1952.

An official citation states that during the period the offensive spirit, skill, fine airmanship and courage shown by the pilots of the two squadrons resulted in an outstanding performance and much damage to the enemy. It continues: "Statistics are quite remarkable. In 79 days of flying they averaged the daily sortie rate of 76.3 sorties, 123 sorties being the highest for one day's operations. A division of 802 Squadron accounted for the first Mig. to be shot down by naval aircraft.

"825 Squadron had only four incidents on the deck resulting in a deck-landing accident landing rate of one in 496 landings. The highest accident-free sequence was 1,613 landings.

"It is evident that these figures could not have been attained without an extremely and consistently high standard of maintenance by squadron maintenance ratings and outstanding support from all in H.M.S. *Ocean*."

The squadrons, which expended some 16,000 rockets and 4,000 bombs in their ground-support role, arrived back in the United Kingdom on board the *Theseus* in December last.

CONCLUSION

This record of aircraft-carrier operations in the Korean war closes in October, 1952—two years and four months after the outbreak of hostilities. It is only fair to point out that this "expensive way of making wind"—as an aircraft carrier has been called—is capable of giving a good account of itself even in operations over the land.

Further, the way the *Triumph* brought two squadrons of aircraft into action within a very few days of getting the word "go" is proof of the mobility and versatility of carrier-borne aircraft and their crews. That the offensive operations carried out by the ships whose exploits are recorded were done in an area over a thousand miles away from the nearest dockyard shows that the logistic organization leaves nothing to be desired. The value of a maintenance carrier like the *Unicorn*, both from the point of view of the replenishment of the carriers with aircraft and carrying out the duties of a fleet transport and general store-carrier, goes without saying.

The increase in flying efficiency that is apparent in the rise in the number of sorties flown is remarkable and speaks well for the keenness and morale of the personnel. In these operations the pilots and observers are getting really valuable experience under war-time conditions.

But it must be remembered that this perfectly good war is being run as far as the Royal Navy is concerned on a peace-time complement, with a peace-time allocation of ships and is not in any way interfering with the normal peace-time duties of the ships on all the other stations. The recent exercises in the Atlantic and the Mediterranean bear eloquent witness to the last assertion.

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AIR O.P. SQUADRONS, ROYAL AIR FORCE

By Major P. W. Mead, R.A.

(Illustrations from sketches by Captain John Moss, M.C., R.A.)

"Smile at us, pay us, pass us. But do not quite forget."
—G. K. Chesterton, "The Secret People."

THERE are few Army officers nowadays, few at any rate in active formations, who could not tell one something about the Air O.P. organization. If they are a little hazy about the proper roles and limitations of Air O.P. units they will at least be able to say what sort of aircraft the latter use, how they operate and where one may expect to find them in war.

In the Royal Air Force, however, there is some ignorance regarding Air O.P. units (except, of course, in those formations which are fortunate or unfortunate enough to contain them) and sometimes R.A.F. officers join Air O.P. units without a clear conception of what awaits them there.

Since Air O.P. Squadrons are R.A.F. and not Army units, it is strange, and from their point of view most unfortunate, that so little is known about them in their own Service.*

HISTORY

The full title of the unit we are describing is the Air Observation Post Squadron, and this title largely describes both its role and its development.

The Observation Post (O.P.) became an established feature of artillery tactics from the day when indirect fire was first introduced. To see where the cannon balls were falling it was necessary for an observer to occupy a position, usually on a hill, whence he could both observe the target and signal to the gun detachments the results of his observations. The amount of terrain visible from any ground observation post is limited, but the higher one can get the more one can usually see, and the artillery observer has, from the earliest times, aimed for the highest places. As the range of guns increased the problem of observation became more acute, and the observer yearned more and more for height.

Towards the end of the nineteenth century, particularly in flat country, "observation poles" were introduced. Now practically confined to zoological gardens, these poles permitted the earnest but thick-skinned observer to raise himself to a hazardous and unsteady height of some twenty feet above ground level, whence he could, if he were lucky, observe the fire of his guns and telephone corrections to them.

One can imagine several reasons why these poles became unpopular, and the development of the captive balloon afforded a distinctly more promising means of gaining height. Balloons were indeed used successfully for artillery observation during the First World War, and for many years afterwards young artillery officers, during their initial training, were given air experience of a particularly uncomfortable nature, at the R.A.F. Balloon School at Rollestone. The advent of long-range anti-aircraft artillery finally settled the issue against balloon observation posts.

Aeroplanes had also been used during the First World War for artillery

*The probable reason for this is that they are largely specialized units employed only in T.A.Fs. and completely inflexible from an Air Force point of view and employed by another Service. It is possible that many Army officers would similarly lack knowledge of the Air Formations Signals Branch.—Editor.

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observation, and after that war the technique of the Artillery Reconnaissance (Arty/R) sortie was further developed. This technique was always useful (and is still useful) to enable the reconnaissance pilot, who sees a fruitful target, to inflict immediate punishment upon it, but for the gunners it afforded no substitute for the high hill, the observation pole and the balloon. One difficulty was that the pilot was no trained artillery observer, and could not, therefore, direct the guns in the same manner as could a gunner officer. The technique employed involved conversion at the gun position of the pilot's observations into corrections suitable for the guns. A far greater difficulty was that the Arty/R pilot and aircraft were by no means always available, and could only be obtained through the formidable machinery of inter-Service channels.

What the gunners still wanted was the raising-up of their observation post officers to the necessary height to give them "command" over the target area. Somewhere about 1935 an autogyro appeared in the capable hands of Flight Lieutenant Wills-Sandford, and was based at Old Sarum for experiments of this nature. The writer himself entered the Air O.P. world at this stage, being selected, with his Battery Commander, Major N. C. Lang, M.C., R.A., as the guinea-pigs for these experiments. The latter started sensationally, for Wills-Sandford's Very cartridge fired as a wind-tester on his first appearance over Larkhill, ignited the N.A.A.F.I. tent.

A number of shoots were carried out by both guinea-pigs from the rear seat of the autogyro, using wireless communication direct to the guns, with results at least no inferior to those achieved by them from ground observation posts. The chief difficulty experienced was that of indicating to the pilot in what direction to fly at the critical moments when each ranging round was about to fall. Major Lang stressed this in his final report, and expressed the opinion that the pilot and observer should be one, and that one a Gunner officer.

"— ignited the N.A.A.F.I. tent."

J. N. W. M.

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It was left to Major Charles Bazley, however, to bring this idea to function. He was one of several gunner officers who had been seconded to the R.A.F. for Army Co-operation duties, and who had qualified as R.A.F. pilots. He now published in the *Royal Artillery Journal*, in a most brilliant article, an exposé of the whole theory and practice of Air O.P. technique, very much as it shortly came to be. The essence of the technique was that the pilot/observer should be a Gunner officer and that he should operate under the direct control of the gunners in the field.

AIR O.P. DURING THE WAR

In 1940 Charles Bazley took a small party over to France to practise Air O.P. technique in action, but Allied resistance on the Continent collapsed before anything had been achieved.

He was not to be denied, however, and after two years of hard endeavour, had the satisfaction of leading the first Air O.P. Squadron—651 Squadron—into action with the First Army in North Africa. The first Air O.P. engagements took place in adverse air conditions and demonstrated fully the ability of Air O.P. pilots to remain alive and effective.

654 Squadron soon afterwards arrived to support the Eighth Army, and from then onwards Air O.P. units became integral parts of battle formations in all theatres. By the end of the war there were thirteen squadrons (including two Canadian squadrons) in action in Europe and one in the Far East. Again and again in battle reports one reads tributes to the value of Air O.Ps.; it is from these rather than from their more spectacular achievements that one must assess their worth. Field-Marshal Montgomery, in a lecture given in October, 1945, emphasized that the Air O.P. had become a necessary part of gunnery, and must have good aeroplanes and good officers for the job.

PRESENT ORGANIZATION

The present Air O.P. organization consists of the following:

The Light Aircraft School at Middle Wallop, whose Chief Instructor is a Gunner Lieutenant-Colonel, and whose Chief Flying Instructor is a Squadron Leader.

Numbers 651, 652, 656, 657 Air O.P. Squadrons, operating respectively in the Middle East, Germany, Malaya and the United Kingdom.

Two independent Air O.P. Flights, operating in East Africa and Korea respectively.

Numbers 661, 662, 663, 664, 666 Air O.P. Squadrons, Royal Auxiliary Air Force, in the United Kingdom.

Each of the Regular Squadrons is performing markedly different functions, dictated largely by the present role of the Army formations they support in their widely separate theatres, but in warlike operations their chief role will always be to enable the artillery to look and to fire on the other side of the hill.

The Air O.P. Squadron is designed to support the artillery of a Corps, and besides a Reserve Flight, will normally contain one Flight for each Division in the Corps. To enable Air O.P. support to be really close support, Flights are always decentralized to Divisions in battle (and during Formation training), and in practice form part of the Divisional Artillery. Commanders of Divisional Artillery (C.R.As.) may further sub-allot their Air O.P. resources so that a Field Regiment, for example, has the support of an Air O.P. sub-section of one pilot and aircraft.

The Air O.P. sub-section is indeed the basis of the Air O.P. organization, and

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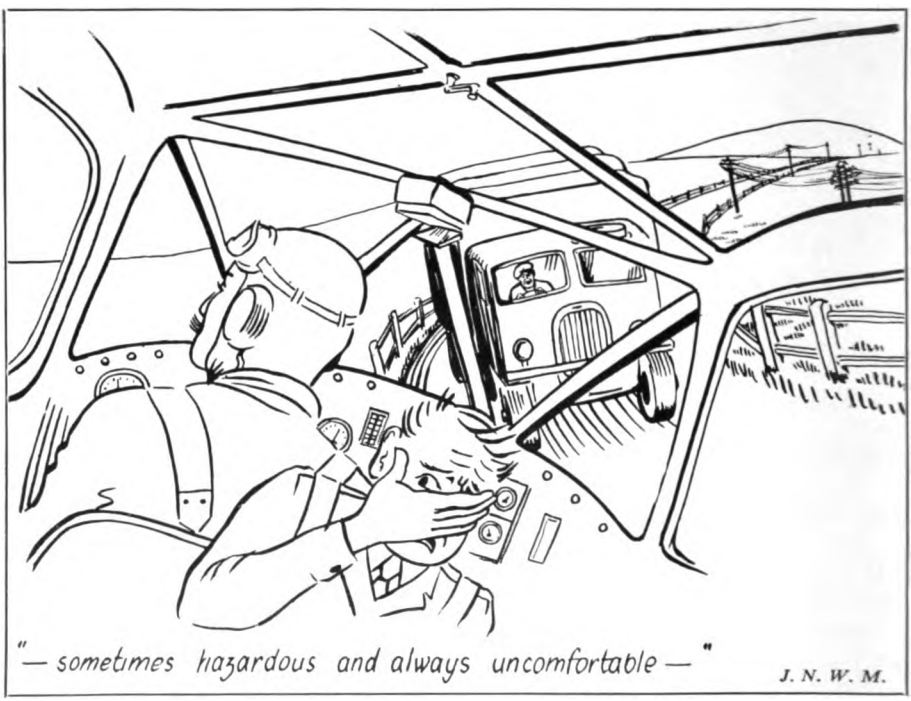
a glance at its make-up will do much to clarify the rest. It consists of a pilot, who is a Gunner officer, two Royal Artillery driver/operators, who man and maintain the wireless sets and drive the vehicles, an R.A.F. engine mechanic and an R.A.F. airframe mechanic, a light aircraft, a jeep and a three-ton lorry. One of the four members of the ground-crew will be the pilot's rear-observer, a responsible, highly skilled, sometimes hazardous, and always uncomfortable office for which he receives crew-pay, but, most unjustly it would seem, no air-crew flying badge. One of the ground-crew, he with the most leadership and initiative, will be the "Number One"; he will always be in charge of the ground party and must be able to find and prepare airstrips, conceal and camouflage aircraft and vehicles, organize the somewhat crude communications between pilot and airstrip, map-read unerringly from rendezvous to rendezvous, and look after the feeding and administration of his party, functions, in fact, more



usually performed by a Senior N.C.O. The fact that one individual in each sub-section can be found with the necessary qualifications for a "Number One" is an indication of what the ordinary British airman or soldier can do if given his head.

There are four of these sub-sections in each flight, which is commanded by a Gunner captain, and has two R.A.F. fitters on its strength. Servicing of aircraft at squadron level is the function of the Mobile Servicing Section, one of which is normally allotted to each Air O.P. Squadron, and which is commanded by a Technical Warrant Officer. Except the M.T. drivers, all its personnel are R.A.F.

It will have been noticed that all the operational pilots of the Squadron are Royal Artillery officers. These officers, after being trained as pilots at the Light Aircraft School, do an Air O.P. tour of two or three years before returning to more humdrum gunnery. They may return to Air O.P. units again for second and third tours. The Adjutant and Equipment Officers are Royal Air Force

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officers. Unless the Squadron happens to be based, in peace time, on a Royal Air Force Station, a considerable amount of administration falls upon the shoulders of the squadron officers, particularly the Flight Commanders, but, since the latter will have to carry out such administration when they operate independently in war, this is no bad thing.

Apart from the officers, the squadron is composed of almost equal quantities of Army and R.A.F. ranks. At all levels members of the two Services are closely integrated, and any tendency to split into Army and R.A.F. components is strongly resisted. The whole unit, being an R.A.F. unit, is under Air Force Law, which the Army officers of the Squadron, being seconded to the Royal Air Force for the period of their tour are, of course, competent to administer.

It can be seen, therefore, that an Air O.P. Squadron is a most unusual unit. Neither Army nor R.A.F. ranks will meet the like in the remainder of their service. The novelty of their job, the fact that much of their training takes place in varied situations and away from base, and above all the decentralization of responsibility to small groups and to junior individuals, makes for a high state of morale.

AIR O.P. TACTICS

The technique of controlling artillery fire from the air presents few difficulties. Light aircraft used by Air O.P. units have always been simple to control and safe to fly, and pilots can devote plenty of attention to observing the shell bursts and correcting them on to the target.

The chief problems which have to be solved are:

(1) Reducing to a minimum the time between the call for Air O.P. support and the beginning of the "shoot."

(2) Survival in the face of enemy A.A. fire and air activity.

The first problem is attacked by siting Air O.P. Sub-Section and Flight A.L.Gs. as near as possible to the Headquarters of the units they support, and by ensuring that communications between them are of a high order. Good battle-drill and training reduces to a minimum the time taken to take off for a sortie.

The problem of survival involves more complex factors. To avoid enemy A.A. fire, Air O.P. pilots normally carry out their shoots from a line some thousand yards or more behind their own forward troops, careful to fly very low, behind the cover of trees and hills, until each round or salvo is actually on its way, when they climb steeply to observe before diving down again.

Where enemy fighter interference is negligible it may be possible instead to fly at a high level over the enemy lines and to observe using binoculars. This is hardly to be recommended against an active enemy air force, and the best protection is probably to remain as low as possible for as long as possible. Sorties are kept of short duration and the pilot's return to his A.L.G. is carried out with the caution of a mother bird's circuitous return to her nest. Provided the first attack by an enemy fighter is seen before it is too late, the problem of evasive action is by no means hopeless. The enormous difference in speeds between pursuer and pursued is an advantage to the latter, whose turning circle is extremely small, who can fly happily between trees and buildings and behind woods and hills, and who, if the fighter pilot reduces speed in his effort to corner him, may be able to lead him on to the muzzles of friendly A.A. guns.

AIR O.P. AIRCRAFT

The very early pioneers of Air O.P. practised their art in Tiger Moths, but fortunately never ventured into the battle zone in them. Throughout their operational history, Air O.P. units have always been equipped with some type of

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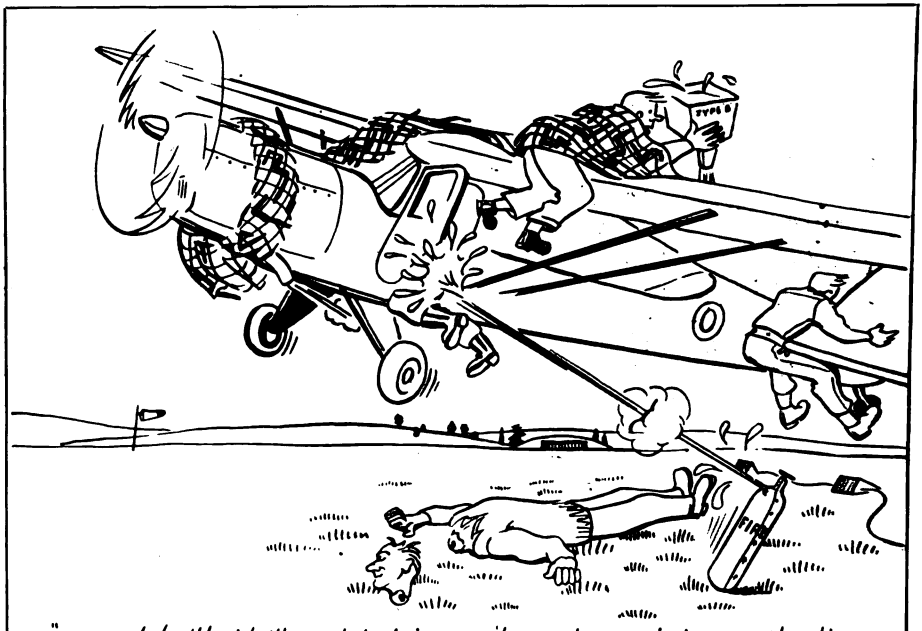

"— good battle drill and training reduces to a minimum the time taken to take off for a sortie —."

J. N. W. M.

Auster aircraft. All have been high-winged monoplanes with a low stalling speed, designed particularly to take off and land in small fields.

The Auster I, which had a Cirrus Minor engine and no flaps, had a short tour of duty, while the Auster II was never manufactured in any numbers. The aircraft with which the first squadrons in North Africa and Burma were equipped was the Auster III. This was a single-seater aircraft with the Army-type wireless set mounted beside the pilot, an all-up weight of 1,550 lb., and some fifty degrees of flap normally available for landing. By removing the wireless set and inserting a second seat the aircraft could be fitted for dual control. Old-timer pilots like to speak of the Auster III as the perfect Air O.P. aircraft, but in fact she trimmed badly and had other shortcomings which would not be accepted today. However, she could operate comfortably from a 200-yard strip, stalling at about twenty knots and becoming airborne almost as soon as the throttle was opened.

The main disadvantage of this aircraft, except in conditions of complete air supremacy, was that no rear observer could be carried, and the persistent tingling in the necks of Air O.P. pilots was no doubt a dominant factor in the introduction of the Auster IV and, soon afterwards, the Auster V. The only differences between these aircraft lay in the elevator trimmers and flying instruments; both were powered by an American Lycoming engine, both had an all-up weight of 1,750 lb. and, with full flap, a stalling speed of about twenty-five knots. In both aircraft a rear observer could be carried, while the Auster V at least had a well-stocked instrument panel, including direction indicator and artificial horizon, which were unknown to its predecessors. The Auster V was the standard operational aircraft in use by Air O.P. squadrons in Italy, Northern Europe and the Far East at the end of the war. It performed a sterling service and was most popular with its pilots.

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With the conclusion of the war, and soon afterwards of Lease-Lend, dollars became a vital consideration, and Lycoming engines an expensive luxury. For this reason, and perhaps others also, the Auster VI was developed, powered by a Gipsy VII engine, and remains to this day the standard Air O.P. operational aircraft. This is again a heavier aircraft (all-up weight 2,160 lb.) and has reverted to the old and limited instrument panel of the original Austers. It incorporates two useful novelties, however, an internal starter for the engine and a wind-driven generator for recharging the batteries. The latter has enormously increased wireless reliability. The Auster VII is a dual-controlled version of the Auster VI. These aircraft stall, with full flap, at thirty to thirty-five knots; their landing performance is, however, somewhat better than their take-off performance, and it is the latter which makes a 300-yard strip a necessity in average North European conditions. They do not handle as satisfactorily as did the Auster V, but they are still good, sturdy aircraft for their purpose, and can be operated with surprising success from all sorts and conditions of surface.

It is impossible for one who has only flown light aircraft to compare their characteristics with those of modern fighter aircraft. R.A.F. pilots who have served in Air O.P. squadrons, and others who have flown Austers, however, are often surprised to find them difficult to fly, in spite of their low speed. Many regard them as more difficult to fly than are modern jet aircraft, although the latter aircraft exact a greater penalty for the pilot's mistakes. In particular, of course, a cross-wind complicates matters considerably for the Auster pilot, especially when the wind speed is comparable to that of the landing aircraft. R.A.F. pilots flying Austers for the first time are usually disturbed by the low speed and the peculiar tail-down attitude of the approach, and have often encouraged ribaldry by their efforts to land at eighty knots instead of forty. In turn, they have said unkind things about the Auster's lack of aerodynamic qualities, and of course what they have said has been true. Nevertheless Air O.P. pilots are, most of them, fond of their Austers, and they cherish most dearly their ability to operate from the moors and fields of the countryside, fields of their own choosing, rather than from permanent airfields.

A recent R.A.F. Adjutant of an Air O.P. Squadron, a war-time fighter pilot and a most competent Auster pilot, said, at the end of his final exercise with the squadron: "Yes, you people are the last exponents of true flying." There is something, perhaps, in what he said.

It is never very safe to write about future aircraft developments, but reference might, perhaps, be made to the helicopter, since one is so often asked when Air O.P. squadrons are to adopt it. It will, of course, have great advantages for Air O.P. units, and should enable them to operate from well-concealed areas close alongside the units they support. When we have perfected a helicopter which is simple and safe to fly, requiring not too close concentration by the pilot, which is manœuvrable, which has good observation for the rear observer, and which is also simple to maintain, then we shall no doubt adopt it. But that day has not yet come.

ROYAL AIR FORCE SQUADRONS

Air O.P. Squadrons are in the peculiar position of belonging to one Service, yet operating with another. Although this may appear to the casual observer to afford excellent opportunities for playing off one Service against the other, nevertheless it has its disadvantages. A conventional fighter or bomber squadron, whose training performance is high, whose pilots possess dash and competence, is known by commanders and staffs to reflect credit upon their formation, and

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small administrative failings, an avoidable accident or two, are weighed in the balance with its known successes. Air O.P. squadrons are usually most highly regarded by the Army formations with which they operate, but the expressions of such approbation, if they find their way at all to higher Royal Air Force headquarters, do not have an effect comparable with that of a good performance, for example, by one of the fighter squadrons. But, on the other side, there are still those little matters which irritate the staff—the constant demands for reinforcements, equipment, assistance and the flying accidents which seem (not always logically) so much less excusable in slower aircraft.

One is often asked why the Army does not take over full responsibility for the Air O.P. squadron, since they already control them operationally. Indeed there would clearly be no difficulty in doing so, since the technical problems of an Air O.P. unit are infinitely simpler than those, for example, of an armoured regiment. It is, however, our defence policy, which the Air Ministry has always favoured, that the Royal Air Force should contain all units who use aircraft for warlike purposes, and for that reason Air O.P. squadrons remain units of the Royal Air Force.

These Squadrons are Royal Air Force units not only in name. Their commanders are proud to fly the R.A.F. ensign and pennant outside their headquarters and to administer the unit as an R.A.F. unit under R.A.F. law, and they are, incidentally, delighted with the opportunity of serving for a while with the richer Service. Never for a moment do Air O.P. squadron officers forget to which Service the unit belongs, and when R.A.F. officers refer to it (as they often do) as "the Army . . ." they never fail to correct them. For Air O.P. personnel—of all ranks and both Services—consider that their units, in their way, bring a full quota of credit to the Royal Air Force, and they would like this to be more widely appreciated.

The views expressed in this article are those of the author, and are not to be construed as official opinions or policies.—EDITOR.

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HIGHER COMMAND IN WAR

Some Notes of a Lecture given by Field-Marshal Sir William Slim, G.C.B., G.B.E., D.S.O., M.C., when Chief of the Imperial General Staff

RECORDED BY WING COMMANDER R. F. PEMBERTON, M.C., T.D., M.A.

A MILITARY commander commanding a force of all arms in battle may be aptly compared with the conductor of a symphony orchestra conducting one of his own compositions, but with this difference: the conductor and his orchestra are comfortably and compactly established in an air-conditioned and acoustically designed concert hall whereas the commander and his forces in battle are spread over a vast area in the most uncomfortable circumstances imaginable and they must "do their stuff" to the accompaniment of violent explosions and earthquake shocks under a hail of bombs and bullets, rockets and shells. Yet it is a good simile, for the commander in battle and the conductor in his hall are both artists.

These were among the important points made by the former C.I.G.S. at a lecture he gave in the Senate House of the University of London at 1730 hrs. on 22nd October, 1952, only ten days before he relinquished his War Office appointment to become Governor-General of Australia.

His subject was "Higher Command in War," and he insisted that every great commander is an artist and for that reason must be allowed to paint his picture in his own way. For the same reason, anyone who aspires to high command should not try to model himself on any other commander; but he should develop his own technique out of his own experiences, modified and amplified by his study of the experiences and techniques of others. "It's no good your putting up two badges on your beret and thinking you're like Monty," said the C.I.G.S., "because you're not." When lecturing on command, a commander has to be careful to avoid the suggestion that his own technique is the only right one, or even the best one, for it would probably not suit another without considerable modification; and if challenged afterwards by someone who claimed that his way was better, the lecturer's answer should be: "Better for you, perhaps, but not for me."

THE MILITARY MIND

Command is a very personal thing, the C.I.G.S. continued. It is an extension or projection of the commander's personality. And it originates in the mind. Many scathing things have been said about "the military mind," most of them without justification. But there is, of course, and must be, a military type of mind, just as there are medical minds, business minds and scientific minds. Each one has its own methods. Your scientist, for example, is a very cautious man; and if you ask him a scientific question, he will probably reply that he must conduct some experiments and compare his results with a fellow scientist on the other side of the world. "Come back in six months' time," he will say, "and I'll give you an answer."

But when a commander has to make a decision in the course of a battle, it's no good his saying, "I must study the war books and consult my friends in other theatres of war." He cannot say, "Come back in a month," or "a week," or even "tomorrow," for he wouldn't be there. He must give a decision there and then, for better or for worse, knowing all the time that his information is incomplete and much of it probably wrong. An immediate decision is imperative. All the

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commander can hope to do, therefore, is to give the best decision possible *in the circumstances* and *at the time*, and never mind what the military historians may say in the future.

Reduced to its essentials, the exercise of command is the same whether you are commanding a section of six men or an Army group of one and a quarter million. The commander's job is to impose his will on others by example, by persuasion and by compulsion. But in all higher commands there are three elements upon which the effectiveness of the command depends. They are: (*a*) the commander himself; (*b*) his headquarters; and (*c*) his contacts with those whom he commands.

THE COMMANDER HIMSELF

It goes without saying that a commander in the field must be physically tough, but he must be mentally tough as well. Since command is the extension or projection of the commander's personality, personality is essential and it must be personality of a certain sort. The personality of a good commander is compounded of many things, the chief of which are: (*a*) will power; (*b*) judgment; (*c*) flexibility of mind; (*d*) imagination; (*e*) knowledge; and (*f*) integrity. Each of these calls for brief exposition.

Will Power.—As the commander is the main-spring or driving force of his command, he must exert will power of a high order. He must, by the exercise of his will, overcome the opposition (i) of the enemy; (ii) of his own staff and subordinate commanders; and (iii) of his allies. The opposition of the enemy is, of course, to be expected, and to impose his will on the enemy is the commander's main task. He must also be prepared for opposition—sincere and well meant, but still opposition—from his staff and subordinates among whom will always be found those who say, "This can't be done." But the opposition of allies is sometimes the worst of the three and the most difficult to overcome. Will power is based on courage, on moral courage even more than on physical courage. "A good commander must be as big as his job and not afraid to lose it."

Judgment.—A commander is continually having to choose. He must choose his subordinates and he must choose between alternative courses of action. Judgment will enable him to choose wisely and that involves picking out the essential factors and recognising their relative values. When he was commanding troops in the field, the lecturer adopted the following slogan and insisted on its being observed:

"NO DETAILS! NO PAPER! NO REGRETS!"

Many commanders, he said, had ruined themselves by regretting their mistakes. He also had another rule for his own observance when he had reached high command. It was:

"BED AT TEN AND UP AT SIX"

and he heartily cursed anyone who disturbed him between those times. When emphasising the importance of will power and judgment, however, it is important to realise that strong will power, if not linked with sound judgment, can be a very great danger.

Flexibility of Mind.—The commander must always be ready for changes in tactics or weapons. Changes in the tactical situation may be very sudden and very rapid. So the commander must be prepared to change his tactics completely at any time. It was a conspicuous fault of the Japanese commanders that their minds were not flexible. They would persist in their original plans long after changes in the situation had rendered those plans abortive. The lecturer had often

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taken advantage of this characteristic of the enemy and defeated them by an unexpected, and possibly unorthodox, manœuvre which threw them off their balance.

Imagination.—While imagination is essential to a commander, he must have a "controlled imagination." There will always be a mental conflict between determination and flexibility, and his imagination will help the commander to keep a balance between these two. Without this balance, determination becomes obstinacy and flexibility becomes vacillation.

Knowledge.—The commander must know more than his subordinates and his knowledge must include: (i) knowledge of men, who are the raw material of war; (ii) knowledge of the enemy, and especially of the enemy commander; (iii) knowledge of major tactics; and (iv) knowledge of administration. Most of the problems with which a commander is faced are administrative problems. He knows what he wants to do, but can he do it? Can he maintain and supply his forces in the places where he wants to put them? There may be too much of a risk. He must therefore be "a good judge of administrative risk," and that is perhaps the ultimate test of a good commander.

Integrity.—One other quality is needed and this is the real test of leadership, a test applied in adversity. It is integrity or "plain honesty." Men will always follow a leader who is winning, but they will not follow nor obey him in a losing battle unless he is honest and they trust him. "If they trust they will stand." To inspire this loyalty and devotion, "a large and simple honesty" is required. Command is a lonely thing and to exercise it for long is dangerous to the person commanding. He must beware of "yes men" and of adulation. For a moment of crisis will come when all his subordinates pause and say, "What next?" They will look to their commander for a lead and he must give it them. It will not be easy, but that is the commander's great moment. Then is he tested. His whole training as a commander has been, consciously or unconsciously, devoted to preparing him for that moment; and the one thing necessary to enable him to surmount it triumphantly is integrity.

THE COMMANDER'S HEADQUARTERS

The commander's headquarters is important for two things: (*a*) for its effect on the commander himself, and (*b*) for its effect on the lower formations. The commander requires information and suggestions, and it is the first duty of his staff to supply them. In addition to accurate information, the staff should offer several plans to meet any given situation so that the commander may have a choice. He will not necessarily choose one of the plans offered to him; he may, in fact, combine two or more, or he may even reject them all and substitute one of his own. But he must be offered alternative suggestions. The second duty of the staff is to convey the commander's will to his subordinate commanders and the troops by clear, quick orders.

Headquarters in the field is always under inspection by lower formations and the troops. It must not only *be* efficient, it must also *look* efficient; and allowances must be made for the very natural tendency of the fighting man to criticise those who direct his activities in battle.

Headquarters staff must not live in too much luxury, especially when the troops are having a rough time; but a moderate contrast in living conditions may be allowed. When the forward troops are on half-rations it is a good thing to put the headquarters staff on half-rations too. And it is surprising how soon full supplies will then be got up to the front lines. Headquarters should be a "friendly place"

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where visitors from the operational units are welcomed and made to feel at home. But if any staff officer forgets his duties to the troops, he should be sent back to an operational unit for a time and that will put him right.

The headquarters of any commander will be organised to suit that commander. As no two commanders exercise command in the same way, so no two headquarters will be quite the same, though they may look the same. The British Army has now adopted the continental practice of having a Chief of Staff who is the commander's right-hand man and co-ordinates the advice and work of the departmental chiefs (G. A. and Q. in the Army; air and administrative staffs in the R.A.F.). This is a good system, though the lecturer himself said he never had a chief of staff when he was a commander.

The size of headquarters is also important. It should be as small as possible consistent with efficiency. All headquarters are now too big, and they all tend to grow. This is due to: (*a*) Too much paper work; (*b*) too many "rackets"; and (*c*) too much transport. All these need watching and periodic reductions are essential.

CONTACTS WITH LOWER FORMATIONS AND THE TROOPS

In all their contacts with lower formations and the troops, the commander and his staff must "cut out the frills and stick to essentials." Many commanders dissipate their strength on non-essentials. It's a question of judgment again. The commander, having chosen his subordinates carefully, must let them work out the details. Subordinate commanders must be given a free hand within the framework of the commander's plan. They appreciate this and work and fight the better for it. And the troops themselves are quick to recognise the commander who confines himself to essentials, and quick also to condemn the fussy general. Above all, the commander must inspire his troops with confidence; confidence in himself and confidence in themselves.

PERSONALITY COUNTS

The British nations have tremendous capacity for leadership and there is any quantity of good material to be developed. The present generation of young officers is as good as its predecessors. All that the young officer needs is a good lead, and then he is first-class. The making of leaders is the development of inherent qualities. Individuality must be developed and brought out, by discipline and by example. In the Services, and in civil life, personality trained by discipline counts.

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THE AUTHORS

By Wing Commander E. J. Tippett, B.Sc.

"THE views expressed in this journal are those of the authors. . . ." So says the editor and thus does he disclaim responsibility for the indiscretions of those who fill his journal; rather like a proud parent of precocious children who proclaims "I never know what they are up to!" Perhaps the editor is wise not to assume responsibility for all that is offered to him, for who knows what provokes his contributors to write and what is their aim in writing? Let us see if by their fruits we may know them; if they are mirrored in their own works; and if they can recognize themselves as they may appear to others.

BIG GUNS AND REPORTERS

Above comment and beyond uninformed conjecture are the big guns, those who write the substantial articles on vital Service matters and world events, with authority and superb competence. These are the writers who have "arrived" before they put pen to paper, whose views command immediate respect because of their record of judgment and action, who would be read were they to write on whatever subject. The sound foundation of the journal is surely laid by the articles of such men, who combine substance with brilliance and enthral as they expound.

Supporting the big guns are the rather less well-known, but just as competent, reporters; those who record events, who describe their experiences, who interpret and comment on current happenings, who keep us informed and help to guide our thinking. Many a fascinating experience is portrayed by such writers, and this journal provides a good medium for disseminating the record of such experiences. These writers are a worthy company, impelled by the urge to record notable events, or motivated by the desire to educate; they serve us well and, like their more exalted colleagues, are above critical comment and frivolous analysis. They provide the first bricks laid on the sound foundation, giving the growing structure firmness and leaving ornamentation to others.

ODD OCCASIONAL WRITERS

Supporting the big guns and the sound reporters is that constantly changing body of original writers, whose articles help to give the contents page that imposing look and the Quarterly that bulky feeling. They are usually men who are unaccustomed to writing but have taken up the pen for one reason or another; and the Quarterly might be a dull affair without them. It is to the efforts of such as these that the Quarterly must surely owe much of its continued vitality, for a journal which is supported by the unsolicited efforts of amateur writers needs a constant stream of such contributors if it is to maintain a stimulating variety. The present writer ranks himself with this band and is vulnerable to any slings and arrows which may be directed at it in the following remarks.

Let us, the odd occasional writers, then, indulge in an exercise of self-analysis, and see who and what we are. As long as we do not take ourselves too seriously and are not too thin-skinned, we may benefit from knowing ourselves better, and at the same time we may provide some other readers with a measure of entertainment. Further, who knows but that others may recognize themselves as belonging to us and may thus be stimulated to write.

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BEES IN BONNETS

Among this band of happy adventurers into the realm of writing we may number the man with a bee in his bonnet, the man in whose brain some notion which has captured his imagination seethes, until a coherent idea takes shape and he believes that he has something to say. What is he to do? He can, of course, put his idea or proposal forward to high authority, through the proper channels and in sober official form; but he may feel that such a method of presentation would cramp his style and deny him the less sedate means of exposition which might catch the imagination and compel attention, where a sober presentation would be passed over with scant notice. Why should he not write up his ideas in an article and send it to the QUARTERLY? There would be fun in the writing, excitement in the acceptance by the editor, or nothing worse than a polite rejection. Thus reasons the man with a bee in his bonnet, as he labours diligently to coax his unruly ideas into the form of an article, and thus he comes to see himself in print. His bees may then buzz around a few more bonnets, soothingly it is to be hoped like the pleasant murmur of busy bees on a sultry summer afternoon, rather than stridently like the invading wasps at a picnic! No bonnets, not even the gilt-laden ones, are entirely inaccessible to such bees, for who may not read that which he is not compelled to. What satisfaction to a writer it must be to imagine that globe-trotting big shots may beguile tedious journeys by dipping into the QUARTERLY; how exciting for him to feel that his ideas thus can receive the attention, however perfunctory, of the great! A cat may look at a king, a pouch-laden marsupial at an Air Chief Marshal, and, under the protection of the Press, a lowly thinker may bother his betters!

EUREKA

Also among this select band of aspiring writers can be found the occasional duty officer who finds himself confined to camp over a holiday period with little to occupy him. Normally, perhaps, he would read little, would not be given to heavy thinking, and would never write. But, denied of the usual distractions of sight and sound, his brain begins to work and, almost by accident, he stumbles on some thought which is new to him. He is so moved by his discovery that he strives to commit it to paper so that others may share it; thus another article is born. What matters is that his ideas may have been established or debunked by others better informed? They are new to him and probably to the majority of his potential readers; therefore they are worth writing down for the edification of the ignorant, even if to the irritation of the erudite. Such a holiday period duty officer may be imagined emerging from his spell of unwonted contemplation triumphantly, like Archimedes from his bath, Handel from his study on completing *The Messiah*, or Little Jack Horner from his Corner.

Another type of contributor, who surprises himself and his friends by writing, is the strong, silent man of action: the senior officer who grows up believing that he is a doer, not a talker or writer, and a jolly good job, too. Then he goes on a course, perhaps at the Staff College, and finds that he can think, talk and write, as well as do, that there are more things in heaven and earth than were dreamed of in his philosophy and that he likes the discovery. When he writes he usually produces something compelling attention, for the directness of approach, the "down-to-earth" outlook and the unfussiness of the man of action are excellent attributes to harness to thoughtfulness and articulation. It is interesting to speculate as to why the sailor generally has to retire before he discovers his powers of expression, whereas the aviator often stumbles on his while he is

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still active. Perhaps it has something to do with the contrast between "ad astra" and "de profundis"! Or perhaps it is all nonsense anyway.

STOLEN THUNDER

Some of us are moved to write by seeing our own ideas in print under the authorship of another fellow. We feel that he has written the very things that we ourselves could have thought of, and are annoyed to see our thunder stolen in this manner. If the other fellow can get away with it so can we; so we also set to and produce our own article, sometimes using the other fellow as a whipping post around which we make our cuts. True, we sometimes base our articles on careless misinterpretation of the original writer, but what odds if he finds himself belaboured for arguments and ideas which he is unaware of having advanced? He can, and often does, write to defend himself, and then a chain of letters to the editor is started. In this way the vitality of the journal is heightened for a spell, latent talent has been stimulated into action, and readers have been roused into mental activity.

VANITY

Few of us can disclaim entirely the allegation that vanity is a factor in moving us to write; that we write for the joy of seeing our own works in print. Getting into the QUARTERLY for us is like getting one's name into a newspaper, or getting one's face in a photo; the gratification of a pardonable vanity. And the QUARTERLY is very generous to us. Look at the big, bold, black type of the title! True, the names of the authors are printed in rather smaller lighter letters, but it is as if they were illuminated by neon lights, with those heavy exclamatory title letters just above them. And the shorter the title the bigger the type; what superb encouragement to pithiness! Should the editor at any time be short of copy, perhaps he could incite the more vain-glorious of us to write by reversing the usual arrangement; that is by printing the titles in the smaller case with the authors' names "writ large."

FREE FOR ALL

What subjects set us going, us happy band of amateurs? The subjects are, of course, numerous and various, but there is one which seems to tempt most of us. We all try our hand at some time or other on the subject of leadership. We find it irresistible and we use it *ad nauseum*, just as uninspired conversationalists use the weather. We write earnestly about it, be we wise men of balanced outlook and sound experience, or be we shallow thinkers and trite speakers. We essay to write of it with diffidence, but often we are tempted to proclaim with arrogance our pet solutions to the problems which go with it. This subject we let ourseves go on, often losing ourselves in vain efforts to grasp the incomprehensible or assess the imponderable. We may be learned or wise, or ignorant and rash, but we all try our hand at leadership; we just cannot help it.

FISH AND FIREWORKS

Such we are, or so we may be imagined. Usually we write with serious intent, but we try not to take ourselves seriously. After all, the journalists who write the newspapers and popular magazines are trained men of learning and skill; and what indignities does not their printed work often suffer after perusal! Many a gifted writer of repute knows that his work may be turned over impatiently in a hurried search for the sports news or the comic strip! that his words of wisdom may greet the world from the wrapping round a pound of

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onions; or that they may penetrate the brain only as they are uncovered by the reader while he consumes his fish and chips. There is little room, then, for amateurs, gifted or pedestrian, to take ourselves seriously. Let it suffice that we amuse, that we may instruct and that we sometimes stimulate; we are essentially entertainers, and the greatest entertainment is to ourselves, in the very act of writing.

The cynical might be tempted to describe us as a bag of assorted fireworks. They might say that some of us, like "golden rain," are flashily brilliant, even dazzling for a brief space, and attracting attention for a time, but that we leave little residual illumination. Others of us may be designated as sharp and declamatory like the "demon thunder flash," providing a short sharp jolt, which is not sustained. A few of us may be held to go round in circles like "catherine wheels" dragging our readers with us in gyrating bewilderment—sometimes getting stuck on our pins before we have finished, and spluttering out ineffectually. Too many of us, like the meagrely filled, catch-penny fireworks of 1952, promise much on first appearance and start brilliantly, only to fizzle out unexpectedly. Some of us, like "jumping crackers," may ejaculate disjointedly in a series of scantily related remarks, which tend to leave our readers in confusion. Maybe we are like this, but we are amateurs and we seem to meet the bill, for the journal continues to be read. After all, like the fireworks, we entertain, titillate the imagination and sometimes stimulate; our indirect effects may be incalculable in the exception.

THE EDITOR

At the beginning of this piece about ourselves we admired the wisdom of the editor for dissociating himself from his motley contributors. But is he so wise after all? Early in his journal he makes the announcement which comes first, but later on he is found to say (in the October, 1952, issue at any rate) "The contents of this publication are the views of the Editor and authors . . ." Are we to infer from this that he has some part in all the contents and that, therefore, he possesses some measure of all our characteristics? What a man! Is he, then, sound, solid and brilliant; a worthy reporter? Has he bees in his bonnet? Does he stumble on ideas or surprise himself by the very act of writing? Does he weigh in because the other fellow has stolen his thunder? Is there vanity in his make-up? Does he let himself go on leadership?* And does he take himself seriously? Heaven preserve the present writer if he does!

*Heaven preserve you for providing a theme for an Editorial. We will now proceed to "let ourselves go on leadership."—The Editor.

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TECHNICAL LITERATURE

By Squadron Leader W. E. Devonald, A.R.Ac.S.

THE most unobservant of us is aware of the rapidly increasing mechanization which involves our lives at home and abroad, electric dry-shavers in place of open and safety razors, washing machines instead of wash-tubs; combine-harvesters, excavators and typewriters—their number is legion.

A few months ago I saw some holiday snaps taken by the proud owner of a most expensive camera. They were bad, even by box camera standards. Why? Because the camera owner failed to make the best use of his perfect apparatus. He had never read the excellent and instructive book presented to him when he bought the camera. Now he has read the instruction book, and his later photographs are well above box camera standards.

Recently, while motoring in the Cotswolds, I was just about to pass a stationary car when I recognized the worried-looking owner who was peering helplessly under the raised bonnet. When I asked what the trouble was, the man, who was an acquaintance of mine, explained glumly that he hadn't a clue—the engine had just stopped. The process of elimination, plus my engineering knowledge, soon narrowed our attention to the coil, and there I found a lead off its terminal. This small fault was quickly put right, and my friend's engine soon purred into life. He looked at me as though I had performed a miracle. When I asked him if he had a book describing the car, he poked about under the driver's seat and produced a very useful servicing manual. I flicked over the pages of the book until I came to the part dealing with starting faults, probable causes and suggested remedies. There it was "Electrical connections, security of," printed in heavy type. When next I ran across this motorist he was full of the book, and told me that had he read it thoroughly when he first had his car, he would have been pounds in pocket at the expense of the local garage.

I have purposely made much of the ignorance of machines shown by otherwise very intelligent men, because the remainder of this article is intended to create an interest in, and to force home, the great importance of technical literature in these times, particularly in that part of the technical world inhabited by personnel of the air forces, civil air lines and the aircraft industry.

Everyone knows that anyone who is not air-minded will never become a useful aircrew member. It can well be said in these days that those who are not book-minded seldom make useful technicians.

Unfortunately there are still aircraft, engine and accessory manufacturers who look upon technical manuals describing their products as a necessary evil and unwarranted overhead expense.

By good fortune, however, the Air Registration Board does not share in this lack of enthusiasm. In fact they make it quite clear to all concerned that civil aircraft do not obtain Certificates of Airworthiness until the manufacturer has supplied a comprehensive servicing and repair manual with each aircraft.

Before the Royal Air Force expanded in the middle thirties, technical air publications were generally associated with the classrooms and workshops of technical training establishments. Indeed the highly trained, well informed ex-Halton or ex-Cranwell apprentices had very little need to consult books about the simple aircraft, engines and ancillary equipment upon which they worked.

With the advent of the great expansion programme this happy state of affairs ended. The training of technicians became very different from that formerly

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associated with Halton and Cranwell. The aircraft and engines ceased to be simple and rapidly became complex.

From this time onward the technical handbook assumed real importance. Today the technical library is just as essential to any squadron, repair depot or other technical formation as the finest tools and equipment.

Many now serving in the various air forces own, or have read, maker's handbooks concerning different items of equipment. These maker's handbooks are a very good substitute for the official Air Ministry manual, but should never be read and followed in preference to the official book.

During twenty-four years in the technical branch of the Royal Air Force I, like many readers of this JOURNAL, took it for granted that a book issued by the makers contained far better information than the rather dull, cheap-looking, unattractive air publications on the same subject. On leaving the Service I joined the staff of the publications department of a well-known firm in the aircraft industry, and quickly learned the real facts about the compilation and production of technical manuals. You may raise your eyebrows when I unhesitatingly tell you that the despised air publication contains far more detail than the manufacturer's book on the same equipment.

Both technical air publications and makers' manuals are written by competent technical authors, many of whom have had years of practical experience in the Royal Air Force and fully understand the type of information the serving technician requires. The illustrations are prepared by competent artists who, under the direction of the author, depict the innermost intricacies of the most complicated equipment.

Air publications are checked and printed by authors on the staff of the air technical publication branch of the Ministry of Supply. These authors are, in general, even better qualified than their fellows working in the various firms. All amendments, leaflets and modification information are afterwards passed to the Ministry by the firm's technical publication department for checking, printing and distribution. Manuals on civil aircraft, engines and ancillary equipment are published by the parent firm after vetting and approval by the Air Registration Board.

If I have persuaded you to regard technical literature, and especially air publications, in a more favourable light, remember that we who write them for your benefit are only human and can make mistakes. You, the user, can quickly have any mistakes you may find rectified by reporting them to your engineer officer, publications officer, or by writing to the technical publications department of the firm concerned. We, the authors and artists, welcome constructive criticisms from anybody, and we will always strive to give you all the information you need, so that you may get the best out of the best machines in the world.

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APPROACH TO SERVICE ACCOUNTANCY

By Group Captain S. C. George, O.B.E.,
F.C.I.S., A.S.A.A., A.C.A.(Aus.), F.C.W.A.(Aus.)

INTRODUCTION

THE best administrator is not a genius, but a man warm in human understanding and with a capacity for taking pains—one who is well aware that blue books and balance sheets omit the imponderables of human joys and sorrows. In a fighting Service how can one ensure that funds are correctly applied with a due regard for economy and efficiency, bearing in mind that the subsidiary distributing units are not concerned with the value of the materials they issue, and have to maintain no account of its cost?

Could this object be achieved by throwing a greater amount of personal financial responsibility upon those whose duty it is to demand and expend cash or stores of any description?

First we must take the processes of consumption in reverse and examine the basis upon which expenditure is determined. This, as will readily be appreciated, is a far different matter from budgeting for an estimated profit, and here the roads of commercial and public administration diverge.

But there is no reason why commercial concepts should not be applied to public administration. It is seldom possible to operate an undertaking without capital assets, but assets not in use are valueless, and their monetary equivalent should be ploughed back into the productive side of the undertaking as quickly as possible, or handed back to John Citizen with a graceful smile. The smile alone would often give him more confidence in public institutions. The possibilities of this in the Services are enormous. A simple test of the truth of the assertion can be made by endeavouring to find one single office, workshop or store where every item, irrespective of its intrinsic worth, is both indispensable and held on charge.

The fewer goods that are held on charge the less transport is needed for conveyance, the less labour needed to handle and account for them. The general process is "Empire-building" in reverse.

ESTABLISHMENTS AND SCALES

A close relation exists between commercial budgets and "authorized scales," whether these are in terms of manpower or equipment. Both are a serious attempt to measure anticipated needs, and both must be converted into monetary equivalents, and funds obtained to ensure that the needs can be met.

An industrial undertaking continually and frequently compares its actual with its estimated expenditure, and where results differ efforts must be made to increase output, or reduce expenditure, or to reconsider the policy that has been adopted. This obviously involves not merely a continuous review of expenditure but also of the budgets.

Manpower is so vital a problem to the Services that establishments are constantly investigated, but there are occasions when a screwdriver may be more important than a dozen men, and there is an equal obligation to avoid wastage of material as there is of manpower.

The essence of the supply services is to ensure that the right material in the right quantities is in the right place at the right time. All provisioning is directed to this end, but it cannot be accomplished without a lively realization by all ranks

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that idle equipment and work inefficiently performed are misdirected effort which result in someone, somewhere, going short.

FIGURES AND THEIR USE

It was once a favourite gibe against public servants that they use figures for support rather than illumination as a drunken man uses lamp-posts, which is another way of saying that figures can be made to prove anything.

The lack of relation between a table of statistics and the argument they are intended to support is not always evident and hasty conclusions may lead to unfortunate decisions.

Figures are of little value without a knowledge of the purpose to which they are to be put and of the manner of their compilation. Similarly, if the foundation is unsound the towering basis of checks and cross-checks superimposed is useless.

No one can complain in the Services of a paucity of statistics of every kind, but blame can be placed upon an administrative officer who may have, ready to his hand, tools of whose existence he is unaware, or of which he does not make full use.

Is an airframe inventory used to ensure that not only the equipment the aircraft should have is there but that it is the right equipment for the particular job? Sparking plugs may be accounted for perfectly, but is the holding the right quantity to provide for the desirable number of spares? What check is made to ensure the legitimate and economic use of consumable stores? Are flight and section inventories really proper records of equipment in common use or are they degenerating into sub-store records? Do stock records provide ready information as to the actual location of equipment? Do issues of clothing on repayment give any indication as to the adequacy or insufficiency of the airman's quarterly clothing allowance? These are but a few of the questions which present themselves to the inquiring mind.

We learn from our mistakes and almost every case of write-off should direct attention to some aspect of faulty administration.

There are many alert minds which are nevertheless unable to assimilate the intricacies of complicated sets of figures, particularly if these are presented in no logical manner or confused by technical terms that are only vaguely understood by the layman. If figures are required their purpose should be thoroughly understood so that they can be presented in as simple a form as possible to tell an easily understandable story.

It is by no means the intention of this article to suggest that an officer should be responsible for discovering all the uses to which his statistics can be put, but he should certainly make it his business to offer such constructive proposals as may occur to him and to learn how to exhaust the possibilities of a situation by drawing upon the resources of other branches.

As a war-time example, there is the old problem of combating the economic war after the fighting has finished. An enemy about to withdraw from occupied territory floods the country with paper money. This wins them friends who will be antagonists to the occupying forces as the old paper money becomes worthless; it presents problems of inflation for the incoming administration; it may even enable the enemy to control industrial undertakings through collaborators long after they themselves have departed. The first step is, therefore, the immediate seizure of the controlling bank and the issue of a new currency. One financial administrator in the last war saw the value of the bank ledgers to the Intelligence Branch and was able to provide invaluable financial information

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which led to the unmasking of countless collaborators and by putting an end to their activities mitigated many of the disastrous results of economic warfare.

COSTING IN THE SERVICES

Attempts have been made at intervals over a number of years to introduce cost accounting in the Services as a means of controlling expenditure, and as an aid to administration.

There are, however, numerous factors which make it impracticable and undesirable to adopt a full cost accounting system on commercial lines. There is the enormous cost involved which could not be justified by results, and the difficulty of deciding what to cost. Hospitals cannot be closed if beds are empty, and the same type of transport is used for a multiplicity of purposes. What unit should be adopted in such cases, and what practical value would be derived from knowing the cost of any particular R.A.F. unit? Any Service which must be prepared for war inevitably carries far heavier stocks than are necessary for immediate use. An armaments race involves the ruthless scrapping of everything rendered obsolete by the latest inventions. The task of accurate pricing of materials would in itself be gigantic. The true value of repairable equipment cannot be established without infinite and expensive investigation. The value of property and land, much of which may be condemned or temporarily redundant, rates of depreciation, valuation of stocks in store-houses and on inventory charge —these are but a few of the difficulties which arise.

Nevertheless, it is essential—if for no other purpose than to obtain money—to know how much would be the cost of raising new squadrons, the cost, for example of training pilots and navigators, the amount involved in the change of a major item of equipment or by a change of policy. The answers to such questions can be estimated within reasonable limits by a combination of shrewd guesswork based upon known factors and by the evaluation of a percentage of carefully selected items of sufficient range and in sufficient numbers to give a reasonable cross-section of the whole. This method is generally known as "cost-finding" rather than cost accounting and is widely used in the Services. Many of the results achieved by this method are already out of date and will doubtless be reviewed as opportunity permits. Examples are: rates of departmental expenses, charges for accommodation and barrack services against personnel of foreign governments, training charges, etc.

Any such tasks are highly complicated. It is not sufficient, for example, to know the annual cost of operating a training school and the annual number of trainees to be able to ascertain the cost of producing a pilot. Behind the school are all the ancillary units which have played their part in the final product.

In the main, when cost-finding has been necessary, the final figures have been assembled at Air Ministry, though much of the information has had to be sought at all levels in the chain of command.

The possibilities of the value of cost-finding at units have not yet been fully explored, but so much importance is attached to this aspect of accounting as a guide to policy and administration that at certain commands costing sections have been established under financial consultants to assist commanders-in-chief.

Enough has been said to show that Service costing has definite limitations, but certain points emerge from investigations which have already been made. Haphazard costing is useless. There must be a definite problem and the degree of accuracy required must be clearly stated. It is not the task of the costing section to produce the problem, though their work may enable them to suggest useful lines of research. Costing should not be undertaken if the problem can be solved by other means.

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PSYCHOLOGICAL APPROACH

A noticeable characteristic of the post-war years is the apathy of people towards the improvement of their own conditions or development of their own resources, and an indifference to matters which are not their direct concern. To this can be attributed much of the waste of material and labour experienced daily. Public spending on an astronomical scale unconsciously fosters this failure to appreciate that small savings by individuals can, in the aggregate, appreciably reduce the burden of taxation and at the same time increase efficiency. It is thus of primary importance to awaken curiosity and stimulate interest.

The audited balance sheet of a Service institute placed on a notice board conveys nothing to most of the airmen whose affairs it discloses—even if they bother to read it. But if the figures are presented in such a way that they show how the man's welfare is affected, what has been done for him, and what can be done with the money available, there is a chance that he may begin to realize that what is before him is an account of the stewardship exercised on his behalf and that he himself can contribute to his own pleasure and welfare. Station magazines might well serve as a medium of education in this respect. The real interest in a balance sheet lies in the figures which are seldom circulated with it, namely, the income and expenditure accounts which show in detail how the capital of the funds has been augmented or diminished. Comparative figures draw attention to abnormalities which need explanation.

The U.S.A. forces have their own department of psychological warfare. One object of this type of warfare is to destroy the confidence of troops in their administrative branches and thus undermine morale. Morale can easily deteriorate if doubts are raised as to the conditions suffered by dependants from whom men are separated by Service exigencies. "Your womenfolk are not receiving their allotments. How do you think they are finding money to live?" This was the enemy's approach, and an occasional complaint from some wife about her marriage allowance seemed to confirm the truth of the allegation in the man's mind. It is therefore of the utmost importance that every phase of work involving the receipt of money by a man's dependants should be dealt with speedily and accurately. No excuse of any sort should be accepted for delays which might destroy confidence in the administrative services, and no one should be allowed to forget that when men are stationed in isolated places and separated from their families trivial remarks may be magnified and distorted to an extent which has often led to tragedy.

"High morale is the first principle governing the effectiveness of the armed forces" (Marshal of the Royal Air Force The Lord Tedder, G.C.B.).

CONCLUSION

The whole aim of the Royal Air Force is to have as many modern aircraft and highly trained crews as possible out of the money available. The total material and manpower of the Service when translated into terms of money represents our financial resources. Good administration cuts costs and releases money for its true purpose. Accounting exists to assist administration, and if the use of figures is not fully exploited the man in the air is not receiving the support to which he is entitled.

The foregoing remarks, as will be appreciated, are intended to provoke thought rather than provide instruction. They can be applied to every aspect of Service accounting, non-public as well as public. Figures are there to be used with imagination. They reflect the efforts of all branches, and all branches must benefit if they are used with discernment and imagination.

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THE AIR FORCES IN PARLIAMENT

UP to the date of writing (11th February, 1953), very little that directly affects the Air Forces has been said in Parliament this year. The Air Estimates for 1953-54 have not yet been published.

On the other hand, several matters of international importance have been discussed recently in Parliament; and as any one of these might, in the future, develop into a situation that calls for operations involving the use of our Air Forces, these matters may be appropriately noticed in this article.

DEFENCE COMMITMENTS

First, then, our commitments in the defence of Western Europe. The Joint Under-Secretary of State for Foreign Affairs (Mr. F. Anthony Nutting), in reply to a question in the House of Commons on 4th February, gave a brief summary of these commitments, in words to the following effect:

(*a*) TREATY OF DUNKIRK.—Under this treaty, which was signed by the representatives of France and the United Kingdom at Dunkirk, and subsequently ratified by the governments of both parties, each party pledges itself to give the other party all the military and other support and assistance in its power should either party become again involved in hostilities with Germany.

(*b*) TREATY OF BRUSSELS.—Under this treaty, which was signed by the representatives of Belgium, France, Luxembourg, the Netherlands and the United Kingdom at Brussels on 17th March, 1948, and subsequently ratified, the parties pledge themselves, in accordance with the provisions of Article 51 of the Charter of the United Nations, to afford any of the other parties all the military and other aid and assistance in their power, if such party or parties should become the object of an armed attack in Europe.

(*c*) NORTH ATLANTIC TREATY.—Under Article 5 of this treaty, which was signed by the representatives of Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, the United Kingdom and the United States at Washington on 4th April, 1949, and subsequently ratified, all the parties agree that an armed attack against one or more of them in Europe or North America shall be considered an attack against them all; and consequently they agree that, if such an armed attack occurs, each of them will assist the party or parties attacked by taking forthwith, individually and in concert with the other parties, such action as it deems necessary, including the use of armed force, to restore and maintain the security of the North Atlantic area. By a protocol, which was signed in London on 17th October, 1951, the provisions of the treaty were extended to include Greece and Turkey.

(*d*) EUROPEAN DEFENCE COMMUNITY.—At the time of writing (11th February) the European Defence Community has not yet been formally established. Considerable spade work has been done to lay and secure its foundations, and the treaty has been signed but has not yet been fully ratified. (The United Kingdom's commitments towards the European Defence Community enter into force on establishment of the Community.) The members of the community are Belgium, France, the Federal Republic of (Western) Germany, Italy, Luxembourg and the Netherlands. (The United Kingdom is not a member.) Under a further protocol to the North Atlantic Treaty, which was signed at Paris on 27th May, 1952, the application of Article 5 of the North Atlantic Treaty (see sub-paragraph (*c*) above) was extended to all the members of the European Defence Community. And on the same date a treaty was signed at Paris between the

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United Kingdom and the member states of the European Defence Community by which the United Kingdom, so long as it is a party to the North Atlantic Treaty, pledges itself to afford all the military and other aid and assistance in its power, to any other party to the present treaty who is the object of an armed attack in Europe and, at the time of the attack, a member of the European Defence Community or of the European Defence Forces.

(*e*) TRIPARTITE DECLARATION.—By this instrument, which was also made in Paris on 27th May, 1952, by the governments of France, the United Kingdom and the United States, the governments of the United Kingdom and of the United States declare that they will regard as a threat to their own security any action from whatever quarter that threatens the integrity or unity of the European Defence Community and will act in accordance with Article 4 of the North Atlantic Treaty, which provides for consultation against a threat to the integrity or security of a member. This could presumably be invoked if, for instance, Federal Germany decided to withdraw its forces from the six-power control of the community. By the same instrument, the United Kingdom and the United States further express their resolve to station on the Continent of Europe such forces as are required by their existing obligations and by their interest in the integrity of the European Defence Community. And by the same Tripartite Declaration, the three governments, France being included this time, which had in September, 1950, declared that they would treat any attack against the Federal Republic of Germany or Berlin from any quarter as an attack against themselves, reaffirmed that they would treat any attack against Berlin as an attack against themselves and their forces, the protection of the Federal Republic being deemed to be adequately covered by the first part of the Tripartite Declaration.

(*f*) OTHER COMMITMENTS.—Her Majesty's Government also have commitment towards Portugal under a treaty made as long ago as 1373 and still in force, and a further commitment towards Turkey under the treaty of 1939.

It is apparent, by the extension of Article 5 of the North Atlantic Treaty to the members of the European Defence Community and by the Tripartite Declaration, that the United Kingdom is prepared to take its share in the defence of Western Europe by contributing armed forces but not by becoming a member of the European Defence Community. This was explained by Mr. Nutting in reply to another question. He pointed out that membership of the European Defence Community carries with it the obligations of subordinating the forces concerned to the command and control of the supra-national institutions of the European Defence Community and of accepting the other conditions laid down in the European Defence Community Treaty. It would not be analagous to serving under S.H.A.P.E., which is not a supra-national organization but is "the military organ, as it were, of N.A.T.O." and provides a unified command over national forces whose own governments retain the right to maintain, augment, decrease or withdraw them at their own discretion.

FORMOSA AND THE FAR EAST

On 3rd February, the Secretary of State for Foreign Affairs (Mr. Anthony Eden) informed the House of Commons that the American President had announced that the United States Seventh Fleet, which had been enforcing the neutralization of Formosa since the outbreak of the Korean war, would no longer be employed to prevent Chinese Nationalist attacks against the mainland of China; and he (Mr. Eden) added that Her Majesty's Government feared that this decision would have unfortunate political repercussions without compensat-

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ing military advantages. This was elucidated later by the Minister of State (Mr. Selwyn Lloyd) who thought that the main "political repercussion" would be that, at the best, the decision would be misunderstood, particularly in the Asian countries, and at the worst, would be distorted and would afford to those who were not friendly to the cause of freedom opportunity for making further trouble.

From the American point of view: President Eisenhower, when he made the announcement, which he did in his first State of the Union Message to Congress on 2nd February, had decided that "there is no longer any logic or sense in a condition that required the United States Navy to assume defensive responsibilities on behalf of Chinese Communists" and he therefore gave instructions "that the 7th Fleet be no longer employed to shield Communist China."

For that is what it amounted to. It was generally understood that the United States Seventh Fleet was protecting Formosa from invasion by the forces of the Chinese People's Republic; or, in other words, protecting Chiang Kai-shek and his troops and the people of Formosa from attack by Mao Tse-tung and his forces. But the thing worked both ways, and it was just as much the Seventh Fleet's responsibility to protect Mao Tse-tung from Chiang Kai-shek as to protect Chiang Kai-shek from Mao Tse-tung.

There were very good reasons for this. The Chinese Nationalist forces under Chiang Kai-shek had been soundly beaten by the armies of Mao Tse-tung; and Chiang Kai-sheck, with the remnants of his beaten army, had taken refuge in the island of Formosa. Mao Tse-tung had thus established himself as ruler of the whole of continental China. The American Government had, for many years, backed Chiang Kai-shek with money and weapons and they naturally would not desert him in the hour of defeat. Besides, he might some day be useful again, particularly as a rallying point for Chinese resistance against Mao Tse-tung. And so they gave him and his island naval protection and made it perfectly clear to the Chinese People's Republic what the Seventh Fleet was there for.

On the other hand, the United States Government did not, at that time, want Chiang Kai-shek to embark on any military or naval adventure against the Chinese mainland "to get his own back." They were content, for the time being, to accept the status quo; though they did not, as the British Government did, accord diplomatic recognition to the Chinese People's Republic as the governing authority of China. In fact, they did not want war to break out again in China. And so they told their fleet to "enforce the neutrality of Formosa," which cuts both ways. Now, however, they find themselves in the anomalous position of defending with their Seventh Fleet, Chinese Communists who are, and have been for some time, waging active war against United States troops in Korea.

By his latest order to the United States Seventh Fleet, President Eisenhower does not imply any hostile intentions against the Chinese People's Republic in that sphere; though it leaves the way open to Chiang Kai-shek, who has already done some small desultory raiding on the Chinese mainland, to make bigger and more frequent raids which would have considerable nuisance value and might conceivably draw off and contain Chinese forces as large as those now operating in Korea. But Chiang Kai-shek is not likely to embark on any considerable military operations against Communist China unless he is first supplied by the Americans with all the latest weapons and equipment; and this, for various reasons, is not likely to happen. On the other hand, if Mao Tse-tung showed any signs of intending to attack Formosa, the United States would certainly defend it because it is regarded as an important link in the chain of island bases belonging to the Western Powers in the Far East and its acquisition by the Chinese Communists would be as great a disadvantage to us as it would be an advantage to

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them. Moreover, if war breaks out in the seas around Formosa, there is a danger that it might spread to Hong Kong and the Philippine Islands, to Okinawa and even to Japan, with disastrous results.

In a special debate on the Motion for the Adjournment in the House of Commons on 5th February, Mr. Herbert Morrison expressed grave anxiety about the effects of the President's announcement. He feared that, in spite of the specific disclaimer (contained in the announcement itself) that "this order implies no aggressive intent on our part," it was "almost an incitement to Chiang Kai-shek to attack the mainland in strength, with an implied undertaking, and, in fact, guarantee, that the American Navy will not interfere if such an attack is made." It created, he said, a risk of spreading the war; and what would happen if Chiang Kai-shek got into difficulties, as well he might? There might be "major trouble" between Communist mainland China and the forces of the United States; and British public opinion, said Mr. Morrison, would deplore that. And suppose that Chiang Kai-shek attempts to blockade the mainland of China and interferes with British shipping, what will the Royal Navy do then? There are obvious possibilities of a very unpleasant kind in the situation created by the President's announcement, and these are quite sufficient to provide reasons for the concern expressed by Her Majesty's Government.

Replying, the Foreign Secretary enlarged upon President Eisenhower's reason for making his decision, by pointing out that the Americans rightly considered that their fleet had been relieving the Chinese Communists of anxiety about the safety of their country while they were carrying out their actual aggression in Korea. Yet these same Communists were daily inflicting loss of life on American troops and on those of their allies, including some of our own troops, and it seemed to the Americans "quixotic" that their navy should be used in this way to the advantage of an enemy.

Mr. Eden then turned to the wider problem of our interests in the Far East in general. In Indo-China, in Malaya, in Korea and elsewhere, there are Asian peoples struggling, with the support and encouragement of the democracies of the West, to establish forms of society that suit themselves. Behind them, in greater security, are India, Pakistan and Ceylon, all newly launched on their national life: In all those countries, he said, the conditions exist for the improvement of life and for greater prosperity and freedom; and the West has already done much, through the Colombo Plan and in other ways, to assist in bringing about these improvements. But upon all, at present, falls the shadow of Communism. It was so in Greece, now it is seen in Malaya, in Indo-China, in Burma and in Korea. The Communist powers are using these young and struggling nations as pawns in the game of breaking and destroying the free world, so that they may fulfil their ambition of world domination.

Mr. Eden did but repeat, in better language perhaps, what many people have been saying: that we must support the young and struggling nations and help them to improve their standards of living, not only as a manifest duty of humanity but also as a very effective counter-stroke to Communist penetration. If this means war, all our air forces will be engaged in it; and neither they nor any other section of our people will shrink from it. Freedom has not only to be won by fighting, it has also to be preserved by fighting. Witness the war in Korea. As Mr. Selwyn Lloyd said, until we have got peace in Korea and some guarantee that that aggression will not be repeated, we have got to go on containing the aggression in Korea. And he might have added: and be prepared always, everywhere and at any time to resist aggression by force of arms as soon as it manifests itself.

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AN ADJUTANT'S DIARY—1

By Wing Commander C. N. Foxley-Norris, D.S.O.

1.

From: Headquarters No. 99 Group
To: Royal Air Force Little Clewing
Date: 21st January, 1953
Ref.: 99Gp/345/Org.

SOLID FUEL—NEED FOR ECONOMY

1. Attention is drawn to the need for strictest economy in the use of solid fuel. Recent severe weather and reduced allocations of fuel have produced a danger of serious shortage, which is likely to affect all stations in the Group before the end of the winter.
2. Consideration is to be given to any possible means of effecting economy in the use of solid fuel. Stations are to render reports by 10th February on the measures taken, and the amount of fuel saving expected from them.

S. L. O'FREESE
Group Captain,
for Air Officer Commanding.
No. 99 Group

2.

File: LC/128/12/Org.

M.1

GP. CAPT. S. T. AYSHUN-MARSTER

1. At E.4 please see Group's letter on fuel economy. At E.5 please see the memo I have circulated to all sections, informing them of the need for strictest economy in the use of solid fuel, and asking for suggestions for economy measures.
2. You will note that among other things I have forbidden the practice of banking up fires and stoves so as to stay in all night, and the use of best coal where coke or nutty slack will serve almost as well. I have warned all sections, including those in married quarters, that a cut in supplies may be expected.

H. TRIER
Flt. Lt.
Adjutant

22 Jan. 53

3.

File: LC/128/12/Org.

M.2

ADJUTANT

1. Your M.1. Quite right. We must all pull together—or freeze together!
2. Apart from the need to cut supplies, I am not sure that our whole supply system has always been quite as efficient as it might have been. My wife tells me

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that we are almost out of both coal and anthracite at home, and the house is certainly abominably cold these mornings. Please look into the whole thing, and see what can be done to improve the supply situation while you're about it.

S. T. A.-M.
Gp. Capt.

23 Jan. 53

4.

AN EXTRACT FROM THE ORDERLY OFFICER'S REPORT

7. On visiting the airmen's mess at the dispersed site for the routine check of dinners at 1245 hours today, I was greeted with many complaints that the stew was cold and undercooked. I tasted the food and found the complaints were quite justified; the meat was nearly raw and the food stone cold (as you know, the cooking in this mess is done on coke stoves).
8. I interrogated the corporal cook as to the reason for this deplorable state of affairs. He told me that he had been instructed that he would get practically no fuel from now on, and was only to use a minimum of what he did get. This fantastic story did not, of course, deceive me for a moment, and I accordingly placed the corporal and both his assistant cooks on a charge. His reaction was such that I was compelled to charge him additionally with dumb insolence.
9. These charge sheets will doubtless reach you in due course.

N. EWBRUM
Plt. Off.
Orderly Officer

26 Jan. 53

5.

A NOTE BY HAND

Dear Adj.,

Just a line to remind you that we've got this Brazilian Air Force Mission arriving tomorrow for a couple of days. The flying and instructional programmes are all teed up and accommodation laid on in the Mess, but for heaven's sake let's get the place properly warmed up for them. January in Sleetshire is going to be a pretty nasty shock for them anyway, and we don't want to start an international incident by giving them all frost-bite, so please make sure the equippers don't let us down on the fuel stakes again.

I'm giving a little party for the Brazilians in my house on Friday. Come along and bring your wife--long frocks.

A. B. TUPP
Wg. Cdr. Fg.
and P.M.C.

28 Jan. 53

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6.

A LETTER

28th January

Dear Mr. Trier, Sir,

I feel I must write to ask you what is being done about the fuel they are giving us or rather not giving us over at the quarters. Nutty slack the Equipment Officer said it was but what I got was all slack and no nuts and not much of that either. As you know my husband has been a senior corporal on this station for a long time now and no complaints either way but if I can't keep him warm when he comes home evenings all this talk about signing on and long-term engagement might just as well go up the chimney.

And talking of chimneys I've never been one to pass remarks but it seems very queer to me that Mrs. Snoop next door always seems to have enough coal and more to keep hers smoking of course her husband's a corporal S.P. not that that makes any difference at least I hope not. Anyway if there's enough coal to make her chimney smoke there ought to be enough to do the same for us all and I'm not the only one over here who thinks so either.

Hoping you will be able to oblige in this matter I sign myself and remain

Yours truly,
Amy Wright (Mrs.).

7.

ANOTHER NOTE

30 Jan. 53

My dear Trier,

Naturally I am well aware that first things come first and that we in the Air Force must cut our coat according to our cloth, but I do feel that not a moment must pass before I register official complaint about the lamentable lack of foresight which has resulted in the death of all, *literally all,* the potted plants in the Station greenhouse. The temperature has been allowed to fall well below freezing point on the last few nights, with fatal results.

My pleas for an adequate coke supply were treated with scant ceremony by those concerned, and with off-hand references to some instructions you have allegedly issued on this subject. I cannot believe that you have forgotten how pleased the Group Captain was over our prize in last year's Unit Garden Competition, and how kind the A.O.C. was about it all. The air was indeed full of the scent of roses and the promise of O.B.Es. Now, alas, all that is a thing of the past. I have no wish to add to your burdens, but from all accounts the responsibility must rest largely on your shoulders.

Pamela Rimrose
Flt. Off.

8.

YET ANOTHER

Adjutant,

What the devil are you up to? Last night the hangar heating was down to a ruddy glimmer and this morning we couldn't start seven engines out of twenty. Result—chaos in both servicing and flying programmes. The infernal civilian

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stoker says he had his orders from you. Please contact me immediately, and in the meantime cancel any tom-foolery you may have issued, or we shan't even be able to unfreeze the hangar doors tomorrow morning.

P. LUGGE-UGGLEY
Wg. Cdr. Tech.

1 Feb. 53

9.

File: LC/128/12/Org.

M.3

Adjt.

1. Please report to me what progress you have made with your fuel economy drive.
2. Incidentally, when I glanced into your office this morning I noticed you had a fine healthy fire glowing in your stove. Don't you think this is perhaps rather undesirable at this time? After all, it's up to the officers to set an example to the men in any little sacrifices we may have to make.

S. T. A.-M.
Gp. Capt.

2 Feb. 53

10.

File: LC/128/12/Org.

M.4

Gp. Capt.

1. With reference to your M.3, please see at E.6 a note on our present fuel stocks, and economies in force to date. As you will see, though a number of minor savings have been effected, the over-all economy achieved can only be described as disappointing. In fact, consumption actually seems to have increased—I can't think what Trier has been up to.
2. I must apologize for delay in answering your M.3. I am somewhat snowed under at present through having to handle not only my own correspondence, but also that of the Adjutant. You will be sorry to hear that he is confined to quarters with a heavy cold and chilblains.

LARS TRORE
Wg. Cdr. Org.

6 Feb. 53

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CONCERNING R.A.F. PERSONNEL

ROYAL AIR FORCE HONOURS, PROMOTIONS AND APPOINTMENTS

Among the honours, promotions and appointments announced by the Air Ministry since the issue of the January, 1953, number of this JOURNAL, are the following:

NEW YEAR HONOURS, 1953

G.C.B. (MIL.)

Air Chief Marshal Sir William F. Dickson, K.B.E., D.S.O., A.F.C.

K.C.B. (MIL.)

Air Marshal Sir Basil E. Embry, K.B.E., C.B., D.S.O., D.F.C., A.F.C.

C.B. (MIL.)

Air Vice-Marshal E. D. D. Dickson, C.B.E., M.D., Ch.B., F.R.C.S.(Edin.), D.L.O.
Acting Air Vice-Marshal E. C. Farman, C.B.E.
Air Vice-Marshal H. P. Fraser, C.B.E., A.F.C.
Air Commodore W. J. Crisham, C.B.E.
Air Commodore J. H. Harris, C.B.E. (R.A.F. Regiment).
Air Commodore W. H. Kyle, C.B.E., D.S.O., D.F.C.

K.B.E. (MIL.)

Acting Air Marshal A. C. Sanderson, C.B., C.B.E., D.F.C.
Air Vice-Marshal C. A. Bouchier, C.B., C.B.E., D.F.C.
Air Vice-Marshal D. A. Boyle, C.B., C.B.E., A.F.C.

ROYAL AIR FORCE HALF-YEARLY PROMOTIONS
1st JANUARY, 1953

AIR VICE-MARSHAL TO AIR MARSHAL

Technical Branch

R. O. Jones, C.B., A.F.C., B.A., D.I.C., M.I.Mech.E., F.R.Ae.S.

AIR COMMODORE TO AIR VICE-MARSHAL

General Duties Branch

S. O. Bufton, C.B., D.F.C.
L. W. Cannon, C.B., C.B.E.
H. P. Fraser, C.B., C.B.E., A.F.C.
H. H. Brookes, C.B.E., D.F.C.
W. H. Merton, O.B.E.
J. H. Edwardes-Jones, C.B.E., D.F.C., A.F.C.

Technical Branch

R. G. Hart, C.B., C.B.E., M.C., A.M.I.E.E., A.R.C.S.
H. W. Heslop, C.B., O.B.E., A.F.R.Ae.S.

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Equipment Branch

B. E. Essex, C.B., C.B.E.

General Duties Branch

D. L. Thompson, D.S.O., D.F.C.
H. M. Pearson, C.B.E.
C. D. C. Boyce, C.B., C.B.E.
R. B. Lees, C.B., C.B.E., D.F.C.
E. C. Bates, C.B.E., A.F.C.
K. B. B. Cross, C.B.E., D.S.O., D.F.C.
E. L. S. Ward, D.F.C.
G. Bearne.
R. C. Mead, C.B.E., D.F.C., A.F.C.
A. M. Rodgers.
D. G. Morris, C.B.E., D.S.O., D.F.C.

Technical Branch

H. Ford, A.F.C.
T. U. C. Shirley, C.B.E., A.M.I.E.E., A.F.R.Ae.S.

Equipment Branch

M. S. Shapcott.

Secretarial Branch

W. E. V. Richards, C.B.E.

APPOINTMENTS

Her Majesty The Queen has been graciously pleased to appoint His Royal Highness The Duke of Edinburgh to a commission in the Royal Air Force in the rank of Marshal of the Royal Air Force, as from 15th January, 1953.

AIR MINISTRY

Air Vice-Marshal R. B. Jordan, C.B., D.F.C., as Director-General of Organization.

Air Vice-Marshal W. A. Opie, C.B.E., as Assistant Controller of Supplies (Air).

Air Commodore R. C. Mead, C.B.E., D.F.C., A.F.C., A.D.C., as Director of Flying Training.

Air Commodore H. E. Nowell, C.B., O.B.E., as Director of N.A.T.O. Affairs (a newly created post).

Air Commodore C. W. Gore, O.B.E., as Director of Equipment (A.).

Air Commodore G. W. Hayes, O.B.E., as Director of Manning.

The Rev. Alan Giles, O.B.E., Q.H.C., as Chaplain-in-Chief (15th May, 1953).

The Rev. T. Madoc-Jones, B.A., as Principal Chaplain (Presbyterian), R.A.F.

FLYING TRAINING COMMAND

Air Vice-Marshal H. H. Brookes, C.B.E., D.F.C., as Air Officer Commanding No. 25 Group.

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HOME COMMAND

Air Commodore W. S. Hebden as Air Officer Commanding No. 63 Group.

Air Commodore D. L. Thomson, D.S.O., D.F.C., as Senior Air Staff Officer, No. 61 Group.

TECHNICAL TRAINING COMMAND

Air Vice-Marshal A. F. Hutton, C.B.E., D.F.C., as Senior Air Staff Officer, Headquarters.

MAINTENANCE COMMAND

Air Vice-Marshal B. E. Essex, C.B., C.B.E., as Senior Air Staff Officer.

Air Vice-Marshal H. G. White, C.B., C.B.E., as Air Officer in Charge of Administration, Headquarters.

Air Vice-Marshal G. Combe, C.B., as Air Officer Commanding No. 41 Group.

Air Commodore F. G. S. Mitchell, O.B.E., as Air Officer Commanding No. 43 Group.

ROYAL AIR FORCE STAFF COLLEGE (BRACKNELL)

Air Commodore W. C. Sheen, D.S.O., O.B.E., as Assistant Commandant.

ROYAL AIR FORCE COLLEGE

Mr. Antony Constant, M.A., as Director of Studies.

UNIVERSITY OF LONDON AIR SQUADRON

Wing Commander A. W. Heward, O.B.E., D.F.C., A.F.C., as Commanding Officer.

MIDDLE EAST AIR FORCE

Air Commodore W. K. Beisiegel, O.B.E., as Air Officer Commanding the Transport Wing.

ALLIED AIR FORCES, CENTRAL EUROPE

Air Commodore C. D. C. Boyce, C.B., C.B.E., as Secretary-General.

RHODESIAN AIR TRAINING GROUP

Air Commodore G. Bearne, as Air Officer Commanding.

RETIREMENTS

Air Marshal Sir Thomas Warne-Browne, K.B.E., C.B., D.S.C.

Air Vice-Marshal A. C. H. Sharp, C.B.E., D.S.O., A.F.C.

Rev. M. K. MacLeod, Ph.D., M.A., F.S.A.

Rev. Canon L. Wright, C.B.E., Q.H.C. (15th May, 1953).

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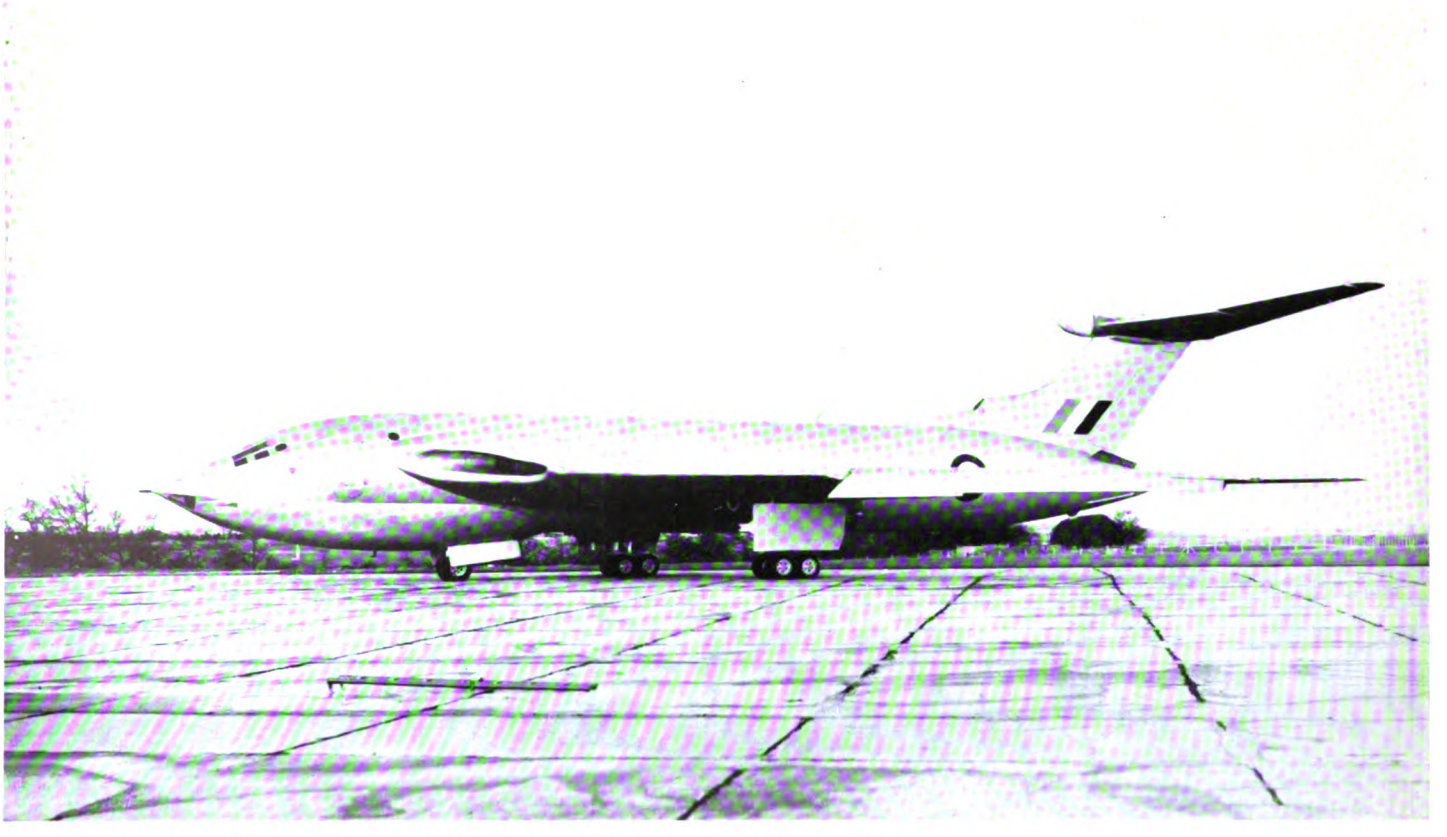

BRITAIN'S FOUR-JET CRESCENT-WINGED BOMBER

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CURRENT EVENTS

The Handley Page "Victor" Bomber

This latest operational bomber is the world's first four-jet crescent-winged aircraft. No other bomber flies as fast, as far and as high with as great a bomb load. With four Sapphire jet engines buried in the wing, it has more power than ten Second World War heavy bombers.

While still on the secret list, this new bomber was put into production for the Royal Air Force. In design it is revolutionary, with a crescent (or scimitar) swept-back wing, which combines the aerodynamic and operational merits of delta, swept and razor-thin straight wings—designed for flight at sonic speeds—without any of their disadvantages. Two main undercarriages, each with four double-tyred wheels, spread the bomber's load over a large area and enable it to operate from airfields with runways of normal strength. Outside the jet efflux and other disturbances, it has a high swept-back tailplane on top of a single fin, also with pronounced sweep.

Battle of Britain Week

Battle of Britain Week will be observed this year from Monday, 14th September to Sunday, 20th September.

By decision of the Air Council in 1945, 15th September is fixed as Battle of Britain Day. As in past years, it will be observed by colour-hoisting parades and other appropriate ceremonial at R.A.F. Stations and by the customary fly past.

R.A.F. "At Home" Day will be on Saturday, 19th September, when a number of R.A.F. stations will again be open to the public.

The Week will conclude with thanksgiving services and ceremonies on Battle of Britain Sunday, 20th September. Fuller details of the Week, including the fly past, will be announced later.

Over £20,000 for Air Force Charities

Last year the total estimated attendance at the seventy-six R.A.F. stations open to the public on R.A.F. "At Home" Day—the Saturday of Battle of Britain Week—was 966,000 and the net proceeds amounted to approximately £20,940, from which the R.A.F. Benevolent Fund and the Royal Air Forces Association will each receive over £10,000.

These results were the best achieved on any R.A.F. "At Home" Day and the proceeds exceeded the previous highest figure by approximately £7,000.

R.A.F. Coronation Review to be at Odiham

The Air Ministry announces that the Coronation Review of the Royal Air Force by Her Majesty The Queen on 15th July will take place at R.A.F. Station, Odiham, Hampshire.

R.A.F. Station, Odiham, near Basingstoke, Hampshire, has since the war been one of the best-known bases of Fighter Command. It was constructed in 1936 and was first used for Army Co-operation units. The Army Co-operation squadrons based there were No. 4 and No. 13 Squadrons, equipped with Lysanders, and No. 53 Squadron, equipped with Blenheims. All three squadrons left Odiham for France early in 1940 and the station was subsequently taken over by Fighter Command.

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After the fall of France the station was used primarily as a training base for personnel of the French, Polish and Czech Air Forces.

Following this, many fighter squadrons were stationed at Odiham for brief periods, including No. 400 (R.C.A.F.) Fighter Squadron equipped with Tomahawk aircraft. The station was subsequently under the control of Fighter Command until June, 1945, when it was taken over by Transport Command as a base for Dakotas.

Shortly after the end of the war, Odiham was returned to Fighter Command and for some years a Fighter Wing has been based there. Among the famous units which have since been stationed at Odiham is No. 54 Squadron, one of the most outstanding aerobatic squadrons in the R.A.F., which, in 1948, made the first crossing by jet aircraft of the Atlantic, on a good-will mission to Canada and the U.S.A.

When after the war the Royal Canadian Air Force based aircraft in this country in 1951, Fighter Squadron No. 421 was at Odiham until the end of that year, serving side by side with R.A.F. jet squadrons.

R.A.F. Regiment (Malaya) to be Represented at Coronation

Inspecting a recent passing-out parade of a recruit course at Changi, Singapore, Air Vice-Marshal H. L. Patch, Senior Air Staff Officer, Far East Air Force, announced that the R.A.F. Regiment (Malaya) would be represented in the Coronation ceremonies in London by two Malay officers, three senior N.C.Os., three junior N.C.Os. and five airmen.

The passing-out parade was unusually colourful. For the first time in the history of the Regiment, the 114 recruits of the course marched on to the parade ground wearing Malay ceremonial dress consisting of white trousers (seluer) with a sarong woven in R.A.F. colours extending from the hip to just below the knee, and a white silk shirt (baju) with gilt studs in the neck band and shirt front. The recruits wore a blue-black cap (songkok) with the R.A.F. badge on the left-hand side.

Air Vice-Marshal Patch congratulated the officers and airmen taking part on their exceptional smartness in drill and bearing.

Royal Observer Corps Medals to be Issued this Year

In January, 1950, His late Majesty King George VI instituted a medal known as the Royal Observer Corps Medal to be awarded in recognition of twelve years' satisfactory service in the Royal Observer Corps, but it has not been possible to issue the medal before this year. The medal is now to be issued and it is hoped that all those to whom it has been awarded may receive their medals before the Coronation.

R.A.F. Reintroduces Peaked Caps for Airmen

Peaked caps were reintroduced into the Royal Air Force for airmen from 1st January, 1953. The new cap, which will be worn for ceremonial and walking-out purposes, is an improved version of the old type of the "flat top" which was previously worn in the R.A.F. The rim is a rounded or bevel shape, and the cap is of a softer material, with a wire stiffener built into the front and rim, and has a larger peak.

All airmen taking part in the Coronation parade in London on 2nd June will wear the new type cap.

On 1st January all officers ceased wearing field service caps, which have been replaced by the beret for wear with No. 2 Dress.

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Mixed dress will still be allowed for airmen temporarily, however, for ceremonial and walking out until all airmen are in possession of the new caps, as issues will be made only when berets or the old type dress caps require replacement. Berets will be worn on other occasions, as before.

Ethiopian Air Force Visits R.A.F. at Aden

Fourteen aircraft of the Imperial Ethiopian Air Force recently paid a five-day good-will visit to a Royal Air Force Brigand light bomber squadron at R.A.F. Station, Khormaksar, Aden, returning a visit paid by the R.A.F. squadron to Addis Ababa in June.

The Ethiopians and several of their Swedish officers, headed by Count Von Rosen, Director of the Ethiopian Air Force, were welcomed by Air Vice-Marshal Douglas Macfadyen, Air Officer Commanding, British Forces, Aden; Group Captain S. L. Ring, Senior Air Staff Officer; Wing Commander C. R. A. Forsyth, Station Commander, who formerly commanded the Brigand squadron; and Squadron Leader D. B. Bretherton, the present Squadron Commander.

The visiting aircraft included four British Fairey Firefly fighters and eight Swedish Saab (A17) dive bombers, flown by Ethiopian pilots.

Among the events arranged for them was an air-sea rescue demonstration in which R.A.F. squadron and a R.A.F. marine craft unit stationed at Aden co-operated, and an airfield ground defence demonstration by a R.A.F. Regiment rifle squadron. A visit was also paid to H.M.S. *Ocean*, the light Fleet carrier, which called at Aden on its return to the Mediterranean from operations in Korean waters.

New Standards in A.T.C. Gliding

Two-seater gliders are now coming into general use in A.T.C. gliding schools as a more economical method of gliding training in the Air Training Corps and the R.A.F. sections of the Combined Cadet Force and it is hoped soon to train only by the two-seater method.

Training will be quicker by the two-seater. To reach the solo-circuit standard (almost the minimum standard) an average of thirty launches is required, compared with between forty-five and fifty when training in single-seat gliders. The two-seater also enables the instructor to sit with the pupil, and experience has shown that not only is the instruction more thorough, but the glider is less likely to be damaged.

THE SOCIETY OF BRITISH AIRCRAFT CONSTRUCTORS (NEWS ITEMS)

Ground Trainers Converted to Jets

The standard ground flight-trainer used by Royal Air Force pilots for indoor instruction in instrument flying has been redesigned as a 600 m.p.h. jet, and the new version is now in production for R.A.F. training schools and operational stations.

Pilots will use the new trainer for practice in handling the controls of a jet under instrument flight conditions—that is when flying at night or in bad weather.

The technique of using the new trainer is the same as on the older type. The pilot climbs aboard, straps himself into his seat just as he would in a real jet,

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and closes the hood, which is made of clouded perspex so that he can see nothing outside.

The trainer's cockpit has been fitted with the latest instruments and controls found in jet aircraft. The trainer has a rate of roll and pitch equal to that on a real jet and at high mach numbers a disquietingly true-to-life buffet has been introduced, characteristic of flight near the speed of sound. High rates of climb and descent, powerful acceleration and deceleration, and the "feel" of the controls at varying speeds are all experienced by the pilot through the stick and instruments.

Modern procedure for getting down through cloud under ground control calls for a rate of descent of anything up to 10,000 feet a minute. To a pilot unfamiliar with jet aircraft this might be alarming; trainees will be able to alarm themselves safely indoors.

As the pilot "takes off" and sets course, an instructor, sitting at an instructor's desk, follows his movements on a duplicate set of instruments. If the pilot is practising cross-country flight, an instrument let-down or an interception, the instructor follows the aircraft's track by watching an automatic recorder move over the map.

After a few trips in this new trainer in the shelter of an instructional school, the pilot will be familiar with the quick, precise procedure required under modern operational conditions, so that his technique and mental reactions are stepped up to Jet Age speed.

All-jet Training Proposed

Plans are being discussed for teaching all future military pilots to fly on jet aircraft right from the beginning without, as at present, any early practice at all on piston-engined trainers. Leading British designers believe a simple jet trainer could be produced for this work.

The suggestion is now under discussion by the Air Ministry, and Flying Training Command is very interested in the proposal. The Navy is also interested.

The reasoning behind this proposal for all-jet training for the all-jet Air Force of the future is the belief that a man should not be taught something that has to be untaught later. And some flying techniques used on piston-engined aircraft are so different from those on a jet that many habits have to be forgotten when a pilot changes from the old type to the new.

High-speed Ejection from Aircraft—Training

The jet age pilot has to move and think faster than any other human being during every minute he is in the air—and this rule applies not only when everything is going well but in times of misfortune too. In other words, if the pilot has to abandon his aircraft, he has to abandon it fast.

To help jet pilots to speed up the drill of high-speed ejection from their planes in an emergency, all fledgling pilots in the Royal Air Force go through ground-practice as a matter of routine. The training is carried out by firing them up Training Towers. The latest Tower ordered by the Royal Air Force is 45 feet high.

Under training, the pupil goes through all the motions that are necessary in the air. First of all he is shown how to position himself in the ejection seat with his feet on the stirrups, knees straight, back straight, head firmly back against the head rest. He is then shown how to raise his hands with his elbows tucked

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in and firmly grasp the trigger handle which is attached to the face blind and pull it firmly downwards.

When the instructor is satisfied that the pupil is in the correct position and that there is therefore no possibility of injury during the prodigious acceleration which follows, a cartridge is inserted in the gun. The word is given, the pupil snaps into position and fires the gun. All he feels is a firm progressive push from underneath and he suddenly finds himself at the top of the tower. Because of the acceleration he is blacked out for the fraction of a second, during which time he is shot up 30 or 40 feet. Shock absorbers at the top guard against the remote possibility of the seat going too high.

(Subject for a Bateman picture, "The man who forgot to fit the shock absorbers.")

New Jet Engine

Details were today released of a new jet engine soon to be in super-priority production for a super-priority aircraft.

This is the Armstrong Siddeley turbo-prop known as the A.S.M.D.3, which will be used in the Fairey Gannet naval anti-submarine aircraft. Believed to be one of the most versatile jet engines in existence, it is a greatly improved version of the "Siamese twin" engine, the Double Mamba.

This new "two-in-one" engine will give to the Gannet more power and more economy of operation than ever before, and with no increase in engine weight or size. With a maximum take-off rate of 3,125 horse-power, the new Double Mamba consists of two side-by-side engines, each known as an A.S.M.A. 5, the total unit driving counter-rotating co-axial four-bladed airscrews. Each engine is a separate power unit with its own fuel, lubrication and control systems. Each half can be started, run or stopped independently.

The long periods of patrol, which are an essential part of a submarine spotter's work, are carried out with only one engine operating. Following take-off at full power, the aircraft can cruise economically on either of the engines, the other being stopped. The Double Mamba therefore provides great safety and economy with all the advantages of twin-engine reliability.

Another feature of its versatility is that this engine has been adapted to run on Admiralty diesel oil, kerosene, "wide-cut" turbine fuel, or any mixture of the three.

The A.S.M.D.3 is an axial-flow "two-in-one" turbo-prop with a take-off power of 2,920 shaft horse-power plus 535 lb. thrust which totals 3,125 estimated horse-power. Its corresponding fuel consumption is 274 gallons per hour (=0.70 LF/EHP/HR). Its length is 102 inches, width 52.8 inches and height 45.25 inches, while its net dry weight is 2,100 lb. (plus $2\frac{1}{2}$ per cent. tolerance).

New Airliners will Cut Trooping Costs

Schemes now under discussion for using British merchant airliners for carrying troops to and from overseas bases show clearly how this new method of transport will cut costs to the taxpayer.

Even now, with existing piston-engined troopers, the Secretary of State for Air has stated that it is cheaper by some £4 to fly a Service man to the Middle East than to take him by boat.

As the new jet and turbo-prop airliners come along, costs will be reduced substantially. The Chief of Air Staff said recently that two long-range four-engined jet transports, with two in reserve, could lift in a year, between the

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United Kingdom, the Middle East, and the Far East, more troops cheaper than two of the latest troopships. The capital cost of the aircraft would be £1 to £2 million, the troopships would cost perhaps £9 million.

The point is underlined in an assessment which has been made for a fleet of Britannia turbo-prop troopers. On a non-stop service between Great Britain and the Middle East, each aircraft could carry 130-140 fully equipped troops at a cost of £15 per man per journey. The flight would take from six to seven hours.

A similar assessment of the London-Far East route envisages a twenty-seven hour journey with three stops. Carrying 120 troops in each Britannia turbo-prop, the cost would be £55 per man. These figures are considerably below those on conventional aircraft and far less than surface costs.

The demand for air troopers has also been taken into account when planning the large airliners of the future—the period around 1960. Estimates show that a projected Handley Page jet transport would carry 148 fully equipped troops on a 2,000-mile non-stop flight in four and a half hours at the very low cost of under £7 per man, single. A 4,000-mile flight taking eight hours, with a load of ninety-four men, would work out at £30 each.

Similar low costs are shown on the other large British jet transports now in the design stage.

The advantages to the taxpayer of air trooping does not stop with the low costs; the speed of air transport also brings with it far greater mobility, because troops are not tied up in transit, and can go rapidly to the defence and aid of Commonwealth and friendly nations overseas. As mobility improves, so a greater area can be covered with the same number of troops—or fewer troops can cover a particular geographical area.

Bartering Aircraft for Raw Cotton

Seventy standard Gloster Meteor jet aircraft have been sold to the Brazilian Air Force for £4 million, payable in raw cotton, consummating the first barter deal of its kind ever made. The Brazilians are selling 15,000 tons of cotton to the British Raw Cotton Commission and the Raw Cotton Commission is establishing a credit for payment of the aircraft.

NEWS ITEMS FROM U.S.A. JOURNALS

N.A.T.O. Air Bases

There are now 95 major air bases built or being built in the North Atlantic Treaty nations, from northern Norway to Italy. Fifty-five are fully operational, and all can accommodate jet fighter wings or, in emergency, A-bomb carriers. From 30 to 35 other bases are being or have been built in West Germany (not in the Atlantic Alliance). Belgium has 14 bases, Denmark 7, Norway 7, France 41, Luxembourg 1, and Italy 12.

Helicopters in U.S.A.

Since 1942 helicopter payloads have increased fifteen times, range has increased six times and cruising speeds have doubled. Early this year an experimental forty-passenger military helicopter will make its first flight.

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Air Rescue Service, Korea

Air Rescue Service has saved 7,753 United Nations' fighting men in Korea since the war began on 25th June, 1950. Of these, 925 were from behind enemy lines.

Aircraft Notes

The Navy's newest attack bomber, the Douglas A3D, has completed its first flight, at Edwards Air Force Base, California. The twin-jet, said to be designed for speeds above 600 m.p.h., stayed aloft thirty minutes in what was described as "an eminently satisfactory" flight. First French plane to fly faster than sound is the Dassault MD 452 Mystere IV. The Martin Seamaster, high-speed mine layer, has been designated the XP6M-1. A B-47B Stratojet has made a record crossing of the Pacific, flying the 2,434 miles from Honolulu to Travis Air Force Base, California, in the unofficial time of four hours and twenty-two minutes. This knocks half an hour from the same bomber's time last September from Travis to Honolulu. Average speed was 565 m.p.h.

U.S. Army Aircraft

The Army and Air Force have agreed on a widened role for Army aviation that will increase the number of helicopters and light fixed-wing craft the Army has to about 2,200, as against some 1,800 now. Of the 1,800, many are small and obsolete. But, Army Chief of Staff Collins says, there will be no Army "Air Corps." Army aircraft now include Bell H-13s, Sikorsky H-19s, Piasecki H-21s, Hiller H-23s, Cessna L-19s, De Havilland L-20s, and twin-engined Beech L-23s. A new type light plane went to the Army this month. The "Helio-plane," powered by a 260 horse-power Lycoming engine, has a top speed of 150 m.p.h. and a low of 35. The all-metal, four-placer has large flaps and leading-edge automatic slats, which enables it to operate with full load from a 100-yard strip.

First Miniature Jet Aircraft

The French have come up with what may well be the world's first miniature jet. The 950 lb. two-seater has a span of 23 ft., is 17 ft. long and 6 ft. high. It is designed primarily as a trainer. The Turbomeca Palas turbo-jet gives it a top speed of about 250 m.p.h.

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SPORT IN THE R.A.F.

NEW PRESIDENTS OF R.A.F. SPORTS ASSOCIATIONS

Air Chief Marshal Sir William F. Dickson, Chief of the Air Staff, has succeeded Marshal of the Royal Air Force Sir John C. Slessor as President of the R.A.F. Cricket Association; Air Vice-Marshal C. E. N. Guest has succeeded Air Chief Marshal Sir John Whitworth Jones as President of the R.A.F. Swimming Association; Air Marshal Sir Ronald Ivelaw-Chapman, Deputy Chief of the Air Staff, has consented to become President of the R.A.F. Small Arms Association in place of Air Chief Marshal the Hon. Sir Ralph Cochrane, who has retired from the Royal Air Force; and Air Commodore H. Ford, the R.A.F. pole-vault and putting-the-shot athlete, has taken over the chairmanship of the R.A.F. Athletic Association from Air Vice-Marshal W. J. Seward. Group Captain Donald Finlay is to continue in office as Deputy Chairman.

The R.A.F. Athletic Association will take over the executive duties of the Combined Services Athletic Association during this year, including the offices of Secretary and Treasurer, which will be held by Wing Commander A. W. Tillman, R.A.F. Home Command, and Squadron Leader P. E. Davis, Air Ministry Inspectorate of Physical Fitness, respectively.

R.A.F. BOY ENTRANTS MAY LEARN TO RIDE FOR TWO SHILLINGS AN HOUR

Royal Air Force Boy Entrants interested in horsemanship will benefit from a new scheme at R.A.F. Station, Cosford, near Wolverhampton. This station, which has the greatest population of youth in the R.A.F., has formed a riding club which will enable Boy Entrants to receive riding tuition for as little as two shillings an hour.

The club, open to all ranks at Cosford, has bought four horses and an officer has lent two more. A retired Army officer, who farms in Shropshire and owns one of the horses which competed in the Olympic Games Trials, has undertaken to teach members to ride.

For elementary tuition a disused hangar—the floor of which has been covered with sand and sawdust—will be used and as pupils progress they will be taught jumping and equitation up to hunting standards.

Over 30 per cent. of the Boy Entrants serving at Cosford have already applied to be taught to ride. Boy Entrants pay 2s. an hour; airmen, 3s. an hour; and senior N.C.Os. and officers, 4s. an hour; married families may also participate.

Squadron Leader H. K. Carroll is Chairman of the club. It is hoped that as the scheme progresses more horses will be purchased.

R.A.F. MODERN PENTATHLON ASSOCIATION

The Royal Air Force Modern Pentathlon Association, which has for some time been merged into the R.A.F. Equitation Association, is again to become an independent association, with Air Commodore G. N. E. Tindal-Carill-Worsley, C.B.E., as Chairman and Honorary Treasurer, and Flight Lieutenant J. A. H. Armstrong, H.Q., No. 81 Group, as Honorary Secretary. The decision has been made on account of the increased interest in modern pentathlon.

"PER ARDUA" MOTOR CLUB FORMED

The "Per Ardua" Motor Club has been formed with the object of fostering an interest in motor cars and motor sport among serving members of the Royal Air Force, the Women's Royal Air Force and the Royal Auxiliary Air Force.

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It is hoped to hold a number of motoring events having a wide appeal and catering for all types of motor cars, and, whenever possible, to enter teams in hill climbs, rallies and trials.

Squadron Leader H. J. McRae, Room 3360, Air Ministry, Whitehall, is the Honorary Secretary.

2nd TACTICAL AIR FORCE FOOTBALL ASSOCIATION

Wing Commander V. H. Webb has been appointed Chairman of the 2nd T.A.F. Football Association, in succession to Group Captain S. Mackenzie.

COMBINED SERVICES WINTER SPORTS ASSOCIATION

The Combined Services Winter Sports Association arranged five winter holiday schemes for the 1952-53 season, which were available to regular, territorial, auxiliary and reserve personnel of the three Services and their families, who by joining the ski or winter sports association of their own Service become members of the combined association without further subscription.

The schemes included six sixteen-day periods at St. Moritz, Switzerland, between 19th December and 28th February, arranged by the Combined Services Winter Sports Association; one period of fourteen days from 18th to 31st January at Bad Gastein, Austria, arranged by the Army Ski Association; two sixteen-day periods at Hochsolden and one sixteen-day period at Obergurgl, Austria, arranged by the Royal Naval Ski and Mountaineering Club, and beginning on 27th December, 10th January and 3rd January, respectively; and six ten-day periods at Chamonix, France, from January to March, with an additional Christmas holiday period, arranged by the R.A.F. Winter Sports Association, in addition to which the Combined Services Winter Sports Association arranged for special Service terms for accommodation from £1 1s. a day to be available at Scheidegg and Wengernalp, Switzerland, from December to May.

Editor's Note: Being old winter sports enthusiasts, faced with the severe cut in Swiss currency by the Government, we joined the Royal Air Force Winter Sports Association (shame on us for not having done so earlier!) and had a guinea's worth at Wengernalp, leaving U.K. on 30th January and returning on 14th February. Not only was there a satisfactory saving in sterling, by availing ourselves of the Association's cheap party travelling ticket, but the food and accommodation were of the best at a greatly reduced number of Swiss francs. It was a pity that the Association could not have arranged the weather with equal efficiency. Although the snow conditions were ideal for ski-ing, we did not see the normal Heaven-sent Swiss sunshine until the day we left. For those who just enjoy a fortnight "living dangerously" and do not require the energizing rays of sunshine to warm their decrepit limbs into a semblance of activity, perhaps the sun's absence was a small matter.

For those who wish to return to U.K. with nigger-brown faces (and possibly a white, open-necked nylon shirt to accentuate it), we recommend a visit to this area at the end of March or early April, when sunshine of the hottest, spring flowers and thoughts to which a young man's fancy turns in spring, will await them; as well as good ski-ing within a few minutes' journey on the mountain railway.

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[*Australian Official Photo*

No. 38 Squadron, R.A.A.F., is based at Changi Airfield, Singapore. It makes supply drops by parachute to ground forces fighting in the jungle. The Air Officer Commanding, Malaya, Air Vice-Marshal G. H. Mills, C.B., D.F.C., is introduced to some of the flying crew by the Squadron Commanding Officer, Squadron Leader R. Carlin, A.F.C.

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ROYAL AUSTRALIAN AIR FORCE

R.A.A.F. TRANSPORT SQUADRON'S FINE RECORD IN MALAYA

THE withdrawal of No. 38 (Transport) Squadron of the Royal Australian Air Force from Malaya was announced in November, 1952, and the Squadron was actually withdrawn at the beginning of December. The decision to withdraw the Squadron was reached after discussions between the Governments of the United Kingdom and Australia. The reasons for the decision were that the Royal Air Force now had sufficient Valetta Squadrons to cope with all transport work in the area, while the Royal Australian Air Force was heavily committed for transport work in Korea and in Australia itself.

For many months before the decision was announced No. 38 (Transport) Squadron had been operating only four Dakotas. The larger part of its strength had been moved to Korea and Japan, for No. 38 Transport Unit, which is now operating nine Dakotas.

No. 38 Squadron had a most impressive record by the time it was withdrawn. The statistics show that since the Squadron went to Malaya in June, 1950, it carried more than 16,000 passengers, dropped 1,700,000 lb. of supplies and uplifted 4¼ million lb. of freight other than supplies and passengers.

No. 38 Squadron was formed in September, 1943, and first operated with converted Hudsons. The change-over to Dakotas in May, 1944, coincided with the Squadron being placed under the control of the Allied Air Forces. No. 38 was engaged in routine courier flights in Northern Australia and the islands, and its Dakotas were the original "Biscuit Bombers" in the Wewak Campaign in New Guinea. The Squadron's aircraft were used in the training of paratroops, and were engaged in the Borneo invasion.

When war ceased in the Pacific in September, 1945, No. 38 evacuated P.O.Ws. from Java, Sumatra, Malaya, Siam, Borneo, Indo China, The Philippines and Japan.

In September, 1946, No. 38 became a component of No. 86 (Transport) Wing, Royal Australian Air Force, and inaugurated the R.A.A.F. Sydney-Iwakuni-Tokyo mail service. Its record on this service was such that it was the first R.A.A.F. Squadron to receive the Gloucester Cup in 1947—the trophy presented to the R.A.A.F. by H.R.H. The Duke of Gloucester, to be awarded annually to the most efficient squadron in the Service.

Between September, 1948, and August, 1949, half of No. 38 Squadron took part in the Berlin airlift—the first active Australian effort in any anti-Communist campaign. The Royal Australian Air Force component in the Berlin

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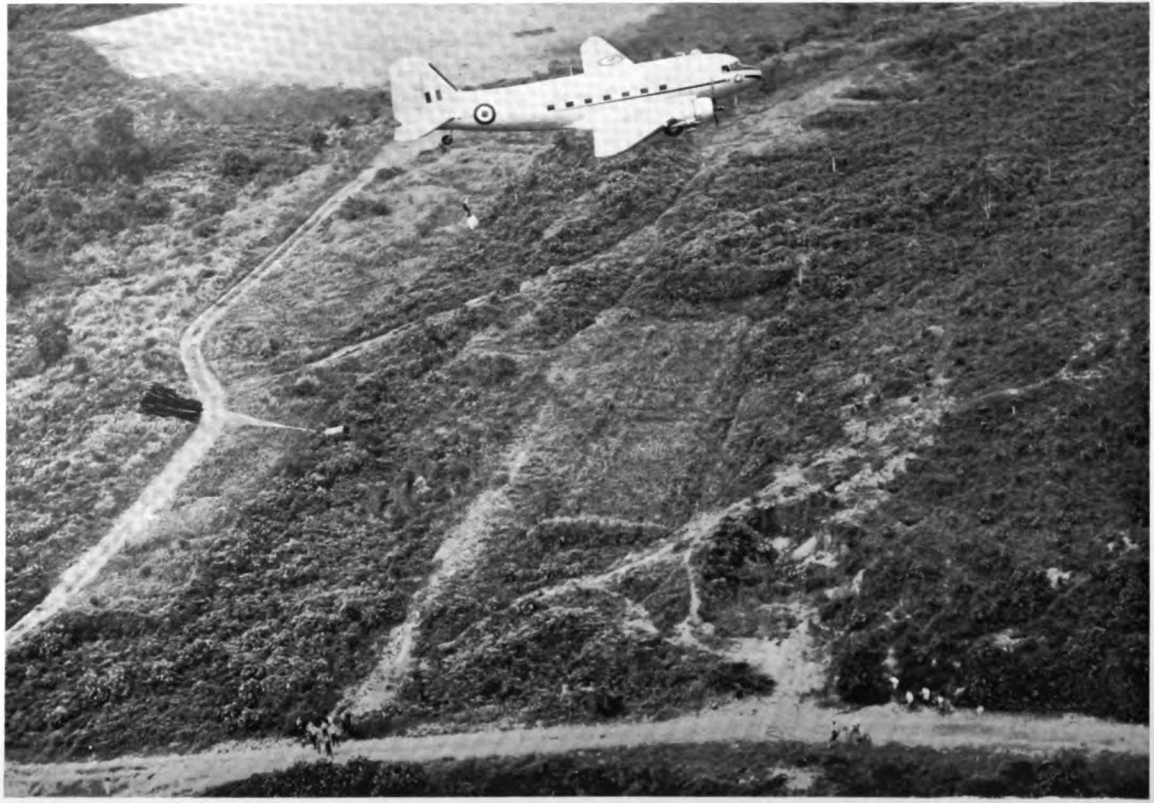

[*Australian Official Photo*

From 300 feet a Dakota of No. 38 Squadron, Royal Australian Air Force, parachutes ammunition and supplies to ground troops

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airlift was commanded by Squadron Leader C. A. Greenwood, who was awarded the O.B.E.

In June, 1950, the entire Squadron went from Richmond to Malaya. After familiarization flights and jungle survival courses the Squadron operated with the Royal Air Force's Far East Transport Wing. Throughout the two and a half years spent in Malaya the Squadron has been engaged over the entire Far Eastern area, stretching from Ceylon to Korea. In Malaya it engaged in supply dropping, paratroop dropping, Army reconnaissance, troop transport, V.I.P. transport, Naval co-operation, air-sea rescue, and freight carrying.

For most of the time the Squadron was based at Changi, where it was engaged in flying scheduled courier services to Ceylon, Borneo, The Philippines, Indo China, Hong Kong and Japan. One of its first tasks was to fly Royal Marine commandos to Korea in September, 1950, when the Chinese onslaught was at its height. In November, 1950, four of the Squadron's aircraft were transferred to Iwakuni to join No. 30 Transport Unit.

One outstanding operation was the dropping of paratroops by a formation led by Squadron Leader R. Carlin, A.F.C. The drop was made in a secluded valley in Perak, used as a bandit hideout. The drop was successful, although it was made in bad weather. During this time in Malaya the Squadron spent two periods—each of three months—at Kuala Lumpur, where it was engaged almost entirely in supply dropping to jungle patrols. These operations in the jungle are more difficult and dangerous than those at police posts where some clearings usually exist. However, very few supplies were lost. Although flying was over most treacherous terrain, and over the ocean, with much adverse weather conditions, the standard of flying was very high and in keeping with the Squadron motto, "Precision." The serviceability figures averaged ninety per cent. although all servicing was carried out under front line tropical conditions and over a period of two years.

In Malaya the Squadron has been commanded by first-class leaders—Wing Commander J. F. Lush (now doing a course in England); Squadron Leader A. H. Birch, A.F.C., Squadron Leader H. D. Marsh, D.F.C., Squadron Leader R. Carlin, A.F.C., and (at present) Squadron Leader T. L. Burke, A.F.C.

The decision to withdraw No. 38 Squadron does not affect No. 1 Squadron, Royal Australian Air Force, which will remain at Tengah. However, the Headquarters unit at Changi—No. 90 (Composite) Wing—will be disbanded, and No. 1 Squadron will now be the sole Royal Australian Air Force formation in Malaya. No. 38 Squadron has returned to Richmond, New South Wales, once again a unit of No. 86 (Transport) Wing.

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[*R.A.A.F.: Official Photo*

As the hangar at Parafield is too small to take a Bristol Freighter in the normal way it is swung in by a tractor on a trolley

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R.A.A.F. SQUADRON SERVES THE ROCKET RANGE

BASED at Mallala, South Australia, is one of the most interesting squadrons in the R.A.A.F.—it is entirely composed of R.A.A.F. personnel, but operates transport aircraft with R.A.A.F. markings, actually owned by the United Kingdom Ministry of Supply for the Long Range Weapons Establishment. It is not even known as a "transport" squadron.

Commanded by Wing Commander M. G. Cowan, D.S.O., No. 34 (Communications) Squadron carries personnel and freight to, about and from the rocket range. Equipped with Bristol Freighters and Percival Princes, it has been rationalized to provide air transport for authorized personnel and anything from a hush-hush rocket to a packet of smokes. Its Dakotas and lone Viking have gone and the two Avro XIXs are in the hangar awaiting instructions for disposal from England. Its Princes are the only ones operating in Australia. The R.A.A.F. is watching their progress to determine whether the Prince or the de Havilland Dove is the better light transport in some near or distant day when finance is available to provide the R.A.A.F. with a transport type in that bracket.

At Mallala No. 34 knows it has a future. It has very small aircraft utilization compared with a civil air line or with Dakota squadrons in Korea and Malaya because it is growing with L.R.W.E. Its four Bristols and three Princes could cope with much more traffic than at present. Even allowing for this, the Squadron will certainly be developed further, with more aircraft and crews. The L.R.W.E. is only at the beginning of its story and No. 34 will grow with it.

No. 34 is used to growing. It was formed at Darwin on 2nd February, 1942, with two officers and four airmen, and two DH-84 Dragons piloted by Flight Lieutenants Dunn and Warwick. Dunn made the first flight to Bathurst Island to bring back a Japanese prisoner of war. The Squadron lost its first aircraft on 3rd March at Wyndham, destroyed by enemy aircraft fire. Two days later it shifted H.Q. to Daly Waters, where the Dragons were replaced by Ansons and three Tiger Moths, with a unit strength of six officers, one warrant officer and twenty-seven airmen. In July the unit moved to Hughes, and in January, 1943, to Parafield to re-equip with DH-84s, DH-86s and DH-89s.

The unit was now in big business. It served R.A.A.F. squadrons all along the track to Darwin, and developed so quickly that on 10th May, 1943, its first Dakotas arrived. This allowed the unit to extend its route to Perth, and later to Broome and Townsville.

By the end of 1943, No. 34 was operating a nation-wide network of transport services with eight C.47s, although in September a number of pilots had been taken to form No. 37. Definite schedules were extended in 1944 to include Milne Bay, and Squadron Leader R. Sheil was running a fair-sized air line with 62 officers, 184 airmen and 18 W.A.A.F.s. In September the Squadron began flying into Hollandia, Nadzab and Finschhafen. In February, 1945, its H.Q. was moved to Morotai so that close transport support could be given to Allied forces moving into the Celebes and Borneo. At the end of the war the unit boasted 19 Dakotas, 76 officers and 226 airmen.

In September - December, 1945, No. 34 was flying Australian and Allied prisoners of war from Malaya, Borneo, Sumatra and Java to Australia. In November it started the courier run to Tokyo, but was disbanded on 6th June, 1946, at Richmond.

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[R.A.A.F. Official Photo

Typical of the ground crew of No. 34 Squadron are these men at work on an engine

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No. 34 was actually the second R.A.A.F. transport squadron to be formed, No. 33 (flying boats) being the first, at Townsville. So its story is one of the important unit histories of the R.A.A.F.

On 1st March, 1948, No. 34 was reactivated at Mallala to operate courier and transport services to Woomera. It was first equipped with Avro Ansons and Dakotas from R.A.A.F. sources, but as soon as Bristol Freighters and Avro XIXs and the Viking became available from England, the original aircraft were replaced. All the later aircraft were owned by the British Ministry of Supply, and eventually it was decided to replace the Viking and the two Avro XIXs with three Percival Princes. The Viking went back to England last year, piloted by Squadron Leader C. R. Gallwey, A.F.C., A.D.C., who spent some time in England studying Princes before flying the first out here early this year. (Squadron Leader Gallwey commanded No. 34 until recently.) Two of the three were delivered to No. 34 by R.A.A.F. crews, the third by a R.A.F. crew. The present fleet of Bristols and Princes is considered to be ideal for these operations.

At the moment a number of minor troubles, arising from lack of maintenance "know-how" or difficulties associated with maintenance of a new type of aircraft and shortage of spares, prevent the rapid absorption of the Prince into full operational usage, but the general attitude is that when these troubles are cleared and the Squadron obtains some operating experience the Prince will be a very useful and rugged light transport.

Both the Prince and the Bristol Freighter can operate on and off poorish fields, grass, claypans and what-have-you in the Great Australian Loneliness. They can carry freight or passengers or stretcher cases. The Freighter's thirty-six seats can all be taken out for four tons of freight.

Most of the Squadron's flights are, of course, not publicized, but its services have been utilized on several unusual operations.

A daily courier is supplied between Parafield and Woomera by Freighters. Although based at Mallala, they load at Parafield for Woomera. Later they will probably be based at Salisbury, the new airport being constructed for Supply near Adelaide, and will load there. The present system means more flying and double landings and take-offs.

Freight loads may be a new batch of rockets from England, urgently needed instruments and technical stores. There is a constant flow of technical and scientific personnel to and from the range.

A special flight may be to Woomera to collect injured men. Sister Pat Tansey, who runs the station hospital at Mallala, goes along for medical air evacuation. Or it may be a survey flight into the blue requiring landings on homestead strips or unprepared landing grounds.

Many of the Squadron's missions are, of course, secret, and only this sketch can be given of the job done by No. 34 (Communications) Squadron. Also the Squadron is responsible for search and rescue for the whole of South Australia. In addition, Squadron aircraft have been made available in emergency for mercy flights, bush-fire patrols and flood relief. A few months back an iron lung for the outbreak of poliomyelitis at Alice Springs was transported as a most urgent requirement.

The Commanding Officer, Wing Commander M. G. Cowan, won the D.S.O. as Commanding Officer, No. 460 Squadron, flying Lancasters over Europe. More recently he was Equerry to Her Majesty for the Royal Tour of Australia and New Zealand, which was abandoned with the death of His Majesty King George VI.

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AIR VICE-MARSHAL A. L. JAMES, C.B.E., C.D.

AIR OFFICER COMMANDING, AIR DEFENCE COMMAND
ROYAL CANADIAN AIR FORCE

After graduating from McGill University with a degree of B.Sc. in civil engineering, he joined the R.C.A.F. as a sergeant in 1924. Commissioned as a pilot in 1926, he flew on forest fire patrols, took a prominent part in photo survey programmes and as a test pilot. In 1929 he graduated at the Imperial College of Science and Technology and returned again to the U.K. for the R.A.F. Staff College Course in 1936. He was on the Canadian joint staff at Washington, 1942 and the following year Director of Organization, A.F.H.Q., Air Member for Technical Services, 1945 and 1946, and in 1951 he took over his present appointment.

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ROYAL CANADIAN AIR FORCE

AIR DEFENCE COMMAND

By Air Vice-Marshal A. L. James, C.B.E., C.D.
(Air Officer Commanding, Air Defence Command, R.C.A.F.)

AT A.D.C. Headquarters near Montreal there is a large polar projection map of the northern hemisphere. This is a very ordinary map, yet it never ceases to surprise me how many of our visitors, when their attention is drawn to certain features of the map, see the world for the first time in the light of a rapidly developing global air defence strategy.

The dividing line between the two politically unfriendly groups of nations in the world today runs for many thousands of miles across the top of the northern hemisphere and around and across the Asian continent. Only a very small part of its total length divides the world into East and West. On either side of this line at varying distances are the growing base systems of air defence forces, and back of these again are the vital areas of production and the main centres of power of the strategic air offensive forces.

The defence of this front and of the important industry which lies in depth behind it is no easy task. However, suitable plans have been developed, forces established and defence commanders appointed. In Canada, the Air Officer Commanding, Air Defence Command, is responsible for the air defence of vital areas; in the United States this responsibility is vested in the Commanding General, U.S.A.F. Air Defence Command. These two Commanders are charged with the responsibility of co-ordinating the air defence plans of the two countries to ensure maximum utilization of available resources. This imposes on them the task of ensuring that all the various elements of the two air defence systems employ common methods and techniques and work together without respect to any geographical boundary.

Although the two air defence systems have only really been built up within the past few years, methods and procedures on techniques have reached a high degree of standardization. The other air forces of the United States, located on the approaches from the north-east and in Alaska, are under separate autonomous commanders, but close collaboration ensures that doctrines and procedures employed are similar to those in use in the U.S.A. and Canada. Problems do arise from time to time and will continue to do so. However, our experience proves that solutions mutually satisfactory in every way will always be possible when mutual confidence and good will exists.

All problems which arise in connection with the co-ordination and implementation of air defence planning cannot be solved by the two Service commanders. There are problems which have broader implication than the purely military, and these must be referred to Government. Sometimes these matters can be settled by correspondence at Government level. If, however, study and discussion

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are necessary, the problem is usually referred to the Permanent Joint Board on Defence which was established by Canada and the United States in 1940.

The R.C.A.F., like most other air forces, is being increased considerably in size. The goal of the current expansion is an air force of forty-one squadrons, of which twelve will be Auxiliary and the rest Regular. Ten out of the twelve Auxiliary squadrons will be fighter squadrons, and the greater part of the Regular squadrons, including the twelve squadrons in Europe, will be fighters also.

With the developments which placed Canadian targets within range of bomber aircraft, it was inevitable that the post-war R.C.A.F. should become primarily a fighter force. The creation of a modern air defence force enabled Canada to offer to fill a serious deficiency in the defence plans of the North Atlantic Treaty Organization. This contribution will consist of a self-contained Air Division of twelve jet interceptor squadrons which will be established concurrently with the build-up of the Canadian air defence system. Thus there will be two fighter commands in the R.C.A.F., the Air Division overseas, and the Air Defence Command at home.

The Air Defence Command itself is less than eighteen months old, although it has been under development for several years, first as a planning cell at Air Force Headquarters, and later as an operational group. The command is growing rapidly and, when it reaches its planned strength, it will be the largest command in the R.C.A.F.

There is a close link between the R.C.A.F. Air Division in Europe and the home-based Air Defence Command, although there is no formal command relationship between the two. Air Defence Command will raise and train the twelve Sabre Squadrons which will make up the Air Division. Six squadrons have left Canada, four are under training in A.D.C., and two will be formed early in 1953. While these squadrons are under training they provide a modest air defence force in being in Canada, and before the last of these squadrons leave the country the newly formed C.F.-100 squadrons will be taking their places on A.D.C. bases.

In assessing the potential for air attack against the North American continent by an aggressor, the least capability it has seemed prudent to credit him with, is the ability to launch air attack in substantial force with little warning against the industrial complexes and other vital areas of this Continent. This puts a tremendous premium upon forces in-being at their war stations in appropriate states of readiness. In addition to conceding an enemy the capability of launching a surprise attack in strength, we must grant him the ability to deliver that attack at any hour of the day or night in all kinds of weather. We must expect our air defence operations to be an around-the-clock affair and our squadrons must be all-weather. Although we shall depend very much on Auxiliary squadrons, our principal reliance, particularly in the early days, will be on the Regular C.F.-100 squadrons which we will form in the months ahead.

Although the area to be defended is large, many of the vital targets are concentrated and are suited to defence by local defence weapons. The aim of our planning is to exploit the inherent characteristics of each type of weapon to the fullest extent—the interceptor aircraft with its greater flexibility will be employed as far from the target area as possible; the gun defences, with their high capacity for prolonged fire against successive targets, will be concentrated for local defence.

Operational control by A.O.C. of anti-aircraft weapons is exercised through the Commander, Canadian Army Anti-Aircraft Command, whose headquarters

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are alongside A.D.C. H.Q. Anti-Aircraft Command at this time is engaged on a programme of re-equipment with American weapons. This will have obvious advantage for logistic back-up of continental air defence, and it permits release to N.A.T.O. forces in Europe of British type anti-aircraft guns.

The predominant feature these days in any air defence is the control and warning system with its network of communications. The system in Canada is made up of three major elements. First, there is a long-range warning system throughout the north country which makes use of personnel and communication facilities of the Armed Forces, the Department of Transport, the Hudson's Bay Company, and the Royal Canadian Mounted Police. This frontier Ground Observer Corps is required to report observed aircraft movements. Second, there is the Ground Observer Corps itself, which will be an essential part of the apparatus to detect attacking aircraft. Lastly, there is the radar network which is the backbone of the control and warning system.

The system is more extensive than that which we would install solely for the protection of Canadian vital areas. A glance at a map will show that any early warning system on, or active defence from, Canadian soil would be of great benefit to the United States. This was recognized at the outset of our joint planning and ultimately resulted in agreement to augment the original Canadian system and to share both capital and maintenance costs on a basis of value to each country. Some of the radar stations will be manned initially by U.S.A.F. personnel, who will be under command of U.S. officers. All air defence activities on Canadian soil, however, come under the operational control of the Canadian Air Defence Commander.

The building of an air defence system is a long and complicated process involving the replacement of outmoded equipment and the integration progressively of modern complex equipment both on the ground and in the air. The squadrons and the radars are the more noticeable elements in the air defence system that is being built in Canada. These, however, are backed up by a growing system of bases, strips, O.T.Us., communication networks, armament ranges, and the whole complex organization that makes up a major operational command. There is a long way to go yet before our goals are realized, but they are now in sight.

Sufficient progress had been made by the summer of 1952 to hold the first major air defence exercise. Exercise "Signpost," as it was known, was aimed at jointly exercising the components of the systems of the United States and Canada, together with testing the effectiveness of the co-ordination between the two forces and obtaining an evaluation of new equipment and the efficiency of manpower utilization. The exercise included not only the Regular air forces and anti-aircraft artillery of both nations, but the participation of R.C.A.F. Reserve fighter squadrons and radar units and Canadian Army Reserve A.A. units. A detailed analysis of the results has not been completed, but preliminary assessments show that much valuable information and experience was obtained and the air defence system will be improved as a result.

Air Defence Command, R.C.A.F., is the youngest of the world's fighter commands. However, young as the Command is, it has been given an important role to play in the air defence strategy of the free world, and is tackling its problems with enthusiasm and vigour.

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[Nat. Def. Photograph, Canada

ROYAL CANADIAN AIR FORCE "LOOKS BACK AND REVIEWS 1952"

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CURRENT EVENTS

R.C.A.F. LOOKS BACK

Reviewing 1952 the R.C.A.F. can look back on a year of expansion and achievement. New operational squadrons were formed, new training stations came into being, and new aircraft and equipment were brought into use. Personnel strength rose from 29,552 at the close of 1951 to an estimated 38,500 at the end of 1952, and for the first time Canadian fighter planes were based in Europe in peace time. The pictures give an indication of the activities of the R.C.A.F. (1) The R.C.A.F. continued its search and rescue and mercy flight programme, and many humanitarian flights were carried out by air force crews. Here, an R.C.A.F. helicopter takes aboard a sick patient. (2) A recent addition to the R.C.A.F. is the C-119 or "Flying Box-car," which is invaluable for carrying heavy freight and equipment. (3) The departure of 439 Squadron from Uplands airport for North Luffenham, England, typifies the extent of the R.C.A.F.'s commitments overseas. Two fighter wings are already based in Europe, building towards a 12-Squadron air division on the Continent. (4) The Minister of National Defence, the Hon. Brooke Claxton, right, announced that Air Marshal W. A. Curtis, Chief of the Air Staff, centre, will retire at the end of January, 1953, and will be succeeded by Air Vice-Marshal C. R. Slemon, left. (5) Symbolizing the importance of women in the modern R.C.A.F., this picture shows an airwoman directing a Sabre pilot to a safe landing. (6) The maintenance and expansion of an efficient air force calls for a vast construction programme, including new barracks, runways and hangars such as this massive concrete structure. (7) Another important aspect of Canada's contribution to N.A.T.O. is the training of air crews from other member countries at R.C.A.F. stations. Forming a camaraderie which bodes well for the free world, two French and two Danish students examine navigation instruments during their training in Canada.

RETIREMENT OF THE R.C.A.F. CHIEF OF THE AIR STAFF

On 31st January, 1953, an outstanding airman and a distinguished Canadian, Air Marshal W. A. Curtis, retired from service to his country as Chief of the Air Staff. He held that position for five years—five years devoted to planning and guiding the cold-war expansion of the R.C.A.F. His outstanding leadership has been directly responsible for not only maintaining the splendid record built up by the R.C.A.F. during the Second World War, but for extending it to new heights of world respect.

Air Marshal Curtis's military career has been unique. He has worn the uniform of the Navy, Army and Air Force and has seen service in two world wars. The superb co-operation he has given to the heads of the other Services while Chief of Air Staff reflects his broad conception of our military requirements in these trying times.

In addition to his technical qualifications and his ability as a leader, he has been held high in the affections of those who have served with and under him. He has been truly liked and respected by all of his colleagues in the R.C.A.F., regardless of rank or position.

We wish to extend to Air Marshal Curtis, through the columns of this JOURNAL, our very best wishes for a long and successful life.

THE R.A.F. SENDS GREETINGS TO R.C.A.F.'S NEW CHIEF OF THE AIR STAFF

The following message from Air Chief Marshal Sir William F. Dickson,

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R.A.F. Chief of the Air Staff, has been received by the R.C.A.F.'s new Chief of the Air Staff, Air Marshal C. Roy Slemon, C.B., C.B.E., C.D.:

"On behalf of the Royal Air Force I send you our greetings and very best wishes on your assumption of the appointment of Chief of the Air Staff, Royal Canadian Air Force. We hope that your tour as C.A.S. will be one of success and prosperity for the R.C.A.F. We look forward to happy co-operation with you."

GROUND DEFENCE OF AIR STATIONS BY R.C.A.F.

Group training in ground defence warfare, which is to involve every officer and airman serving in the Ottawa area, has been started at R.C.A.F. Station, Rockcliffe.

The training, which will be given to more than 3,000 R.C.A.F. members in the Ottawa area, is eventually to be taken by every serving member of the R.C.A.F., and is designed to enable the R.C.A.F. to protect the local areas of its air stations. Similar training is taking place at other R.C.A.F. stations in Canada and overseas.

AWARD OF DISTINGUISHED FLYING CROSS

Her Majesty The Queen has approved the award of the Distinguished Flying Cross to Flight Lieutenant Ernest A. Glover, 30, of Leaside, Ont.

Flight Lieutenant Glover won his award while flying with the United States Air Force in Korea. He was officially credited with three MiG 15 aircraft destroyed and two others seriously damaged during his fifty-mission tour.

AWARD OF CROIX DE GUERRE

Squadron Leader J. E. (Andy) Anderson, D.S.O., D.F.C., 30, of Winnipeg and Kingston, Ont., has been presented with the Croix de Guerre with Gold Star by the Government of France. Colonel Marcel P. Faure, French Air Attaché at Ottawa, made the presentation.

This latest award to Squadron Leader Anderson was "for exceptional services during the Second World War, rendered in the course of outstanding air operations which greatly hastened the liberation of France." Squadron Leader Anderson now commands 408 Photo Reconnaissance Squadron at Rockcliffe, near Ottawa.

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SERGEANT SHATTERPROOF SENDS OUT THE CALL

SIR,

Well has it been observed that great oaks from little acorns grow. Similarly, from the molehill of a Warrant Officer's spleen we may shortly witness the emergence of a democratic mountain that will reduce the Kremlin's bulk to the insignificance of a doll's house.

Less than a week ago I happened to find myself in the office of the Station Adjutant, Flight Lieutenant Hornet. The occasion was one of those not infrequent disagreements that occur between W.O.I Gallstone and myself over the interpretation of Q.R. (Air). While my opponent was stating his case, I observed an unfamiliar publication lying on the table beside which I was standing. Ever anxious to protect our officers from the possibility of exposure to unwholesome literature, I slipped it into my pocket unobserved, intending to scrutinize it later for pornography or subversive thinking.

The nature of our debate is not important. Suffice it to say that a compromise was reached, though not until Flight Lieutenant Hornet had been forced to admit that no finer lawyer than I ever stepped through a barrack-room door. Invigorated and refreshed by the deft thrusts and lighting ripostes of the encounter, I left the room—as usual—a moral victor.

As soon as I was safely alone, I opened the publication I had just borrowed. . .

Men say that the cry which burst from my lips was heard above the noise of a

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flight of jets warming-up on the tarmac in front of "A" hangar. It has, in fact, since been likened by Leading Aircraftman Bladder to the bellow of a stegosaur, marooned on Mount Ararat, watching the waters of the Flood begin to abate. And well it might. For there between my hands I held a copy of the ROYAL AIR FORCE QUARTERLY AND COMMONWEALTH AIR FORCES JOURNAL.

I see the sweat start out upon your forehead, Sir, as you read these words. I see the tea splash over the edge of the cup as your shaking hand gropes for it. Feverishly you pluck your last issue from the bookshelf at your side. Desperately you scan its pages. "What," you mutter hoarsely, "has Shatterproof detected? Can it be that, despite my vigilance, something unsavoury has escaped me? —something that may rock the Commonwealth to its very foundations? something that . . ." But let us calm ourselves, Sir. You have nothing with which to reproach yourself. On the contrary, your magazine has opened the way to a renewal of that collaboration which, some eight years ago, did so much to cement the bonds that bind the British Commonwealth of Nations together. By its help, I may again make contact with Sergeant Snag of the Royal Air Force.

To that end, Sir, I would ask the hospitality of your pages, in order to send out a clarion call to that lion-hearted N.C.O. Say to him that, here in far-off Canada, the boys in the field still speak with bated breath of the grass-snake that emerged from the Commanding Officer's dictaphone cylinder. Whether his grateful country has since rewarded him with the honours he so richly deserves, or whether, his work in the Service done, he has placed his talents at the disposal of England's industry, let him know that the Royal Canadian Air Force has not forgotten the man who master-minded so much of its defensive strategy against the Brass.

I shall ever be proud that Snag, during his brief tour of duty with our Service, regarded me as his closest friend. As is always the way when forceful characters meet, we instantly recognized each other's latent strength—so much so that he used to refer to me as his "old cock-sparrer," which I understand to be the highest compliment that an Englishman of the old school can pay.

Snag's rich and unbridled humour on the parade ground was a source of constant delight to all the Station's senior N.C.Os.; but even more remarkable, from an artistic point of view, was his rare gift of song. Indeed, it was as the sweet singer of the Royal Air Force that I last saw him, on the eve of his departure. There he stood, straight as a ramrod, in his usual place beside our Mess bar. His faithful tankard was clasped in his hand, and he was swaying imperceptibly to keep time with his own singing. Only someone who knew him as intimately as I did would have noticed that his eyes had been drawn a little out of focus by emotional strain.

"Snag's" rich and unbridled humour on the parade ground

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The song he sang was a nostalgic number from his early Service days. It told of a troopship about to leave Bombay, heavily laden with old worn-out airmen returning to die in their native land, yet still summoning up enough strength to bless all the sergeants, warrant officers and corporals whom they were leaving behind. It told of the terrible last-minute warning about promotion uttered by the broken men on the ship as it pulled out, and of their erstwhile comrades on the dock creeping back to their barracks in the sweltering heat of India. All this it told, and more; and then at last it ended with a "Bless 'em All!" so fervent that it woke up W.O.I Gallstone in the married quarters nearly half a mile away.

"Snag's" Farewell Party . . . one of the most affecting functions ever held in the Mess

It was generally agreed later that the farewell party for Sergeant Snag was one of the most affecting functions ever held in the Mess. And it was typical of that iron man's self-control that, when eventually we saw him to his train, he seemed to be the least affected of us all.

Such a man, Sir, was Sergeant Snag; and his sudden recall to England (following the discovery of the sirloin steak tacked to the underside of one of W.O.I Gallstone's drawers during the hottest period of July) came as a great loss to progressive thinking in the Royal Canadian Air Force. It is not mere emotion, however, that urges me to seek your assistance in learning his present whereabouts. Mr. Churchill, Mr. Eisenhower, and Mr. St. Laurent do not plan their policies apart. The same threat confronts them all.

**Aes Semper Nobiscum.*

SHATTERPROOF.

*The motto of the Shatterproofs. It has been alternatively translated as "The Sword is ever at our sides" or "The Brass we have ever with us."

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[R.A.F. Photo

At R.A.F. Station, Nicosia, L.A.C. P. Dyer of Auckland paints the kiwi he has carved in bas-relief out of the local sandstone. The carving will be used to decorate the gate leading into No. 14 Squadron. The kiwi is New Zealand's National Emblem

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ROYAL NEW ZEALAND AIR FORCE

CURRENT EVENTS

By Flight Lieutenant G. Bentley

THE R.N.Z.A.F. ENSIGN FLIES IN MIDDLE EAST

ON the airfield of Nicosia, in Cyprus, the Blue Ensign of the Royal New Zealand Air Force flies before a neat row of Nissen huts. This is the headquarters of No. 14 (Fighter) Squadron, now fully settled and "operational" in the Mediterranean as New Zealand's contribution to the Middle East defence plan.

The pilots have been flying their new Vampire jet fighters since the end of October, 1952. Everyone worked with enthusiasm in the first few months, re-creating the squadron from the raw material at hand.

While squadron organization continues, personnel are also experiencing a reorientation of outlook in the interesting and ancient island of Cyprus. It is a land inhabited by friendly, leisure-loving people, whose history is colourful and imprinted on the island in every village of mud-walled houses. Among the inhabitants, the New Zealanders, with characteristic enterprise and adaptability, have already made a large number of friends; they have quickly learned to blend their way of life with that of Cyprus.

The station at Nicosia is comfortable, with accommodation and amenities of the best. Living quarters, of stone with tiled floors and shuttered windows, are cool and well ventilated by large cooling fans. An added amenity is all-wave radio.

SPORT AND ENTERTAINMENT

Station facilities include an excellent library service. Opportunities are provided for study, free of charge, under expert tuition, of any language or subject.

As traditional lovers of sport the New Zealanders have found Nicosia a "home-away-from-home." There is a station yachting club, a ski-ing club (which operates from Mount Olympus in the winter) and facilities for rugby, soccer, basket-ball, squash, cricket, swimming in the warm Mediterranean waters, shooting, tennis and athletics.

Out of their sporting life has arisen an activity that is itself traditional in New Zealand, the formation of an all-Maori concert party, which has already developed a high entertainment value among both the Forces and the civilian population.

The first performance was by chance, and took place at a half-way house when the R.N.Z.A.F. rugby team was returning to Nicosia after playing against the Army at Famagusta. The inevitable guitar was produced and the Maori

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players began to sing. Local villagers gathered, and encouraged by other New Zealanders, the Maori party broke into action songs and "hakas" (war dances).

This modest beginning has now snowballed into a formidable list of engagements, which so far has included an appearance at Government House before the Governor of Cyprus, Sir Andrew Wright, Lady Wright and members of the Cyprus Philharmonic Society.

Since the chance roadside performance new songs and "hakas" have been learnt, a second guitar has been purchased and a spear has been made for the "haka" leader.

The Maoris have enjoyed themselves at every appearance. Their "hakas" are traditional and have many uses. In their pre-colonial warlike days one form of "haka" was used before battle to inspire the war party with courage and the enemy with fear; in their days of peace another form was used to welcome visitors to their villages and it is this usage which is predominant today. The war "haka," however, is still familiar to many of the younger Maoris and they are capable of committing themselves to inspiring and impressive performances. There are also many modern versions of the old action songs, as well as the rare surviving traditional songs. Whatever form of "haka" is used, action song performed, or modern ballad sung, the rendition is full of the fire and vigour of the early Maori, whose almost classical purity of tone has been handed down even to the Maori of today, looked upon in New Zealand as being equal in every other way with the European population.

The people of Cyprus, enchanted by the pleasant harmony, the action and the rhythm, have made so many requests for appearances that a considerable number have had to be refused.

W.A.A.F. TO SERVE IN FIJI

Women in the Royal New Zealand Air Force are to be permitted once more to serve in Fiji. This represents a return to former practice, for until the end of 1945, airwomen served in Fiji, in certain trades, alongside New Zealand airmen. Those years showed, too, that tropical service was popular.

The first airwomen to see peace-time service in Fiji will leave for the Lauthala Bay station—on the island of Viti Levu—early in 1953. There will be about twenty W.A.A.F. posts to fill there initially.

The news that Fiji service for airwomen has official sanction again has been welcomed by members of the New Zealand W.A.A.F. and it is expected that many applications will be received to serve there.

FIRST GRADUATES FROM BOY ENTRANTS' SCHOOL

"Because you are the first graduates from the Boy Entrants' School, the Service will be watching your careers with interest." The Chief of Air Staff (Air Vice-Marshal D. V. Carnegie, C.B., C.B.E., A.F.C., R.A.F.) made this comment recently to the fifty-three graduating pupils who comprised the first course at the Boy Entrants' School, which opened at R.N.Z.A.F. Station, Woodbourne, in January, 1952.

The Chief of the Air Staff told the boys: "Your year's training has been hard, but the syllabus has been framed with the intention of giving you the essential background on which further training can be built. First and foremost, the school has tried to build up character and discipline."

Air Vice-Marshal Carnegie also emphasized the importance of the ground staff to the Service.

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On arrival at Woodbourne the Chief of Air Staff took a general salute and then inspected the boy entrants. Later the Air Vice-Marshal was the reviewing officer at a ceremonial parade of the students. He presented prizes to outstanding students and watched a display of gymnastics and life-saving given by the boys.

R.N.Z.A.F. GROUND TRADESMEN CHOSEN FOR FERRYING DUTIES

Twenty-one ground tradesmen of the Royal New Zealand Air Force have been selected for training in the United Kingdom in preparation for the ferrying by R.N.Z.A.F. aircrew of sixteen Sunderland flying-boats to New Zealand. These aircraft, bought from the Royal Air Force, will replace the Catalina flying-boats which have been used by the R.N.Z.A.F. since early in the Second World War.

The first Sunderland aircraft are expected to be ready for delivery early in March. It is hoped to ferry the remainder to New Zealand at the rate of two aircraft a month.

Four complete technical crews, besides eight air radio fitters, and a maintenance party of three which will remain in the United Kingdom for the duration of the ferry, have been selected in the meantime. They will travel to the United Kingdom in R.N.Z.A.F. Hastings transport aircraft.

The engine and airframe fitters in the party will undertake "on-the-job" training with Short Brothers, makers of the Sunderland, and with the Royal Air Force. The air radio fitters will undertake radio training with the R.A.F. and B.O.A.C. before returning to New Zealand as members of Sunderland crews.

The first two technical crews, the maintenance party, and the eight air radio fitters, left R.N.Z.A.F. Station, Whenuapai, for the United Kingdom in December.

OFFICIAL BADGE FOR No. 41 SQUADRON

Her Majesty The Queen has approved the official badge for No. 41 (Transport) Squadron of the Royal New Zealand Air Force, which, equipped with new Handley Page Hastings aircraft and new Bristol Freighters, is based at R.N.Z.A.F. Station, Whenuapai, near Auckland.

The design is simple, the Southern Cross being boldly superimposed over the globe, which reveals the southern hemisphere. The symbolism is evident: The Squadron operates regularly to other parts of the world, but is based in and flies mainly around the southern hemisphere. The motto, "Korero, Ka Oti," may be translated as "Speak and it is Done."

The badge will be presented by the Chief of Air Staff, Air Vice-Marshal D. V. Carnegie, C.B., C.B.E., A.F.C., R.A.F., at a suitable ceremony at Whenuapai.

No. 41 Squadron is today the R.N.Z.A.F.'s only long-range heavy transport squadron. It followed in the steps of the well-known war-time No. 40 Squadron and has already built up a splendid reputation with long-range courier flights to Japan during the occupation, on active service anti-bandit operations in Malaya, in internal transport work in New Zealand, in the incident-free airlift of No. 14 (Fighter) Squadron to Cyprus and in training flights between New Zealand and the United Kingdom. It is commanded by Wing Commander R. F. Watson, A.F.C.

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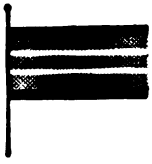

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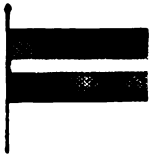

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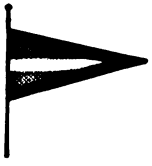

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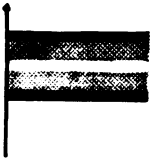

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APPOINTMENTS IN THE R.N.Z.A.F.

[*R.N.Z.A.F. Photo*

Wing Commander J. M. Checketts, D.S.O., D.F.C. R.N.Z.A.F.

Recent senior appointments in the Royal New Zealand Air Force include the following:

Wing Commander J. M. Checketts, D.S.O., D.F.C., to command R.N.Z.A.F. Station, Taieri.

Wing Commander W. H. Stratton, D.F.C. and Bar, to command the Fighter Wing at R.N.Z.A.F. Station, Ohakea.

Group Captain C. A. Turner, O.B.E., to be Director of Organization and Staff Duties at Air Department.

PROMOTIONS

To Air Commodore:

Group Captain G. Carter, C.B.E., A.F.R.Ae.S., Air Member for Supply.

To Group Captain:

Wing Commander A. B. Lindop, O.B.E., Director of Equipment.

Wing Commander C. A. Turner, O.B.E., Director of Organization and Staff Duties.

To Wing Commander:

Squadron Leader R. F. Watson, A.F.C., Officer Commanding No. 41 (Transport) Squadron.

R.A.F. OFFICER TO RETURN TO ENGLAND

Group Captain R. A. C. Carter, D.S.O., D.F.C., R.A.F., who has been on loan to the R.N.Z.A.F. from the R.A.F. since 1948, is to return to England soon. Group Captain Carter was the first officer commanding the Officers' School at R.N.Z.A.F. Station, Whenuapai, and later, when promoted to Group Captain, was appointed Director of Organization and Staff Duties at R.N.Z.A.F. Headquarters, Wellington. Group Captain C. A. Turner, O.B.E., formerly Commanding Officer at R.N.Z.A.F. Station, Taieri, has succeeded Group Captain Carter as Director of Organization and Staff Duties.

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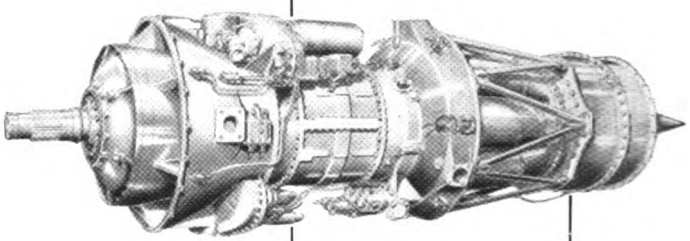

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BOOK REVIEWS

Brackles—Memoirs of a Pioneer of Civil Aviation. Compiled by Frida H. Brackley. (Simpkin Marshall Ltd., 242 Marylebone Road, London, N.W.1, 695 pp., illustrated; 25s.)

For more than twenty-seven years, Brackles—Air Commodore H. G. Brackley—made brief daily notes in his diary and asked his wife to keep safely all his letters, so that one day he could write his memoirs. His untimely death by drowning in November, 1948, was therefore a double tragedy. It not only robbed British commercial aviation of one of its most experienced and able leaders, but robbed us all of a book which would have given the complete, fascinating "inside story" of British air line development from its humble beginnings to the present day, and of the early days of R.A.F. Transport Command, of which he was S.A.S.O. It was a tragedy, too, for the designers and builders of our flying boats, for Brackles was a staunch supporter of the "fly British" policy, and equally convinced that the safest and best way of linking a world-wide, maritime Empire was by flying-boat services.

Now the air line of which he was chief executive (British South American Airways) has been swallowed up by B.O.A.C.; its trans-Atlantic services are flown exclusively by American-built air liners; the superb Princess flying boats which he ordered for B.S.A.A. lie uncompleted and apparently unwanted at Cowes; and his "Memoirs" are lacking in the sort of stories everyone hoped to read.

When one recalls that the life story of the greatest man who ever lived has been told simply and perfectly in about one hundred pages by four great writers, it seems hardly credible that Brackles's story could not have been told satisfactorily in nearly seven hundred pages. The reason is that incidents in a man's life which seem important to his wife are seldom the things that interest the average reader. Thus, the student who searches for details of Brackles's splendid pioneer survey flights over most of the Empire air routes will find them buried almost irretrievably beneath a wealth of irrelevancies such as "Hermione Eckstein stayed at Combe (*she did great work for the Girl Guide movement and was a great friend from my girlhood. Her sudden death following a relapse from an operation was a great shock to us all.*)"

Nevertheless there is no disputing the great contribution to British air line development made by Air Commodore Brackley, and there is little wrong with this book that drastic editing and writing up by an aviation historian could not have put right. Some sections, notably those on Brackles's exploits in Canada and America in 1919-20 with a Handley Page V/1500, and as a member of the British Air Mission to Japan in 1921-23, are full of facts and interest. In these days of three-mile runways, one can only marvel that the heavily-laden V/1500 (wing span 5 ft. greater than a Constellation) could be force-landed in a small, uneven field, with a run of 30 yards. It is good to be reminded also of the great part the Royal Air Force played in paving the way along the Empire routes. And one can only wonder sadly if we are not again falling into a trap today because the Japs, as in 1922, appear to "harbour no militarist designs."

It will be a pity if the irrelevancies in *Brackles* dissuade potential readers from buying it, because Air Commodore Brackley was the sort of hard-working, clear-sighted, fair and loyal man so badly needed in these times, and his story could be an inspiration to the young men who now fly the routes he pioneered. Furthermore, quite unintentionally, it pays tribute to the wives of such men, who pay a high price in loneliness for the achievements of those they love.

J. W. R. T.

Flight Eastward. By John Fores. (Jonathan Cape, 30 Bedford Square, London, W.C.1, 255 pp.; 12s. 6d.)

This is the story of an air-line flight from London to Calcutta—hardly a typical flight because its ingredients include a forced landing at an outlandish emergency airfield in the Middle East, suicide, pearl smuggling and a dash of romance. But it is so well written that it never seems larger than life, and the author's descriptions of the beauty and incidents of flight rank with some of the finest in aviation literature.

Nothing is missed. As the air liner takes off at the start of its adventurous journey, he notes how the edge of the airfield "dropped off into a shallow valley, while, away to the right, a shadow gambolled down the slope—their own shadow, leaping quickly over hedges and trees like a frisking gazelle until it was lost with their increasing height." Then again he captures perfectly the sensations of landing approach—the way the airfield

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appears to rotate around the banked wing; the wheels dropping and "slowly turning as they straightened their bent legs painfully"; the way the aircraft appears all at once to fly into thicker air as its flaps come out; and then how a slow approach seems to speed up alarmingly as airfield markers flick-flick-flick under the nose. Surely these are among the greatest delights of those who truly love flying.

The beauty and technical accuracy of John Fores's novel can be explained only partly by the fact that he was once a navigator. He is obviously also a natural story-teller. Aircrew, passengers and airfield staff are all perfectly-drawn characters and he quite obviously knows Malta, Cairo, Karachi and other landing fields visited by his fictitious air liner. The result is a novel which no airman or air passenger could fail to enjoy.

J. W. R. T.

Time Enough to Live. By Dan Brennan. (Secker & Warburg, 7 John Street, London, W.C.1, 231 pp.; 10s. 6d.)

Dan Brennan is a thirty-five-year-old American who volunteered for the Royal Canadian Air Force in 1941 and flew fifty-two combat missions from English bases, first as tail gunner in a Halifax and then, when transferred to the U.S.A.A.F. in 1943, as ball-turret gunner of a Fortress. After reading *Time Enough to Live*, one can only wonder what sort of pilots he flew with, because those in his novel seem to divide their leisure hours between excessive drinking, love-making and philosophizing on why they are fighting a war. They spend so much time doing this, with so little success, that one can only echo the comment of the W.A.A.F. officer heroine, "You Americans talk so much. All you wanted to say was you're doing it because you are afraid."

Despite its "realism" and verbosity, there are moments of real pathos and understanding in this story of veteran R.A.F. bomber pilots who forsake instructing for another tour of operations on Mosquitoes, because they are more afraid of fear than of death. It pays sincere tribute to such men; but cannot be regarded as a great novel.

J. W. R. T.

Atlantic Alliance. Published by Oxford University Press; price 6s.

This book is another production of one of the Chatham House Study Groups working under the ægis of the Royal Institute of International affairs; it shows all the most typical attributes of their work, being methodical, analytical and impartial. It offers a careful and reasoned study of the North Atlantic Treaty Organization, its origins and growth, its present form and future prospects, its aims and assets as well as its difficulties and drawbacks.

Although N.A.T.O. is a recent organization, it has already passed through several phases of development and realignment, and in addition has all the complication and variety of function and nomenclature, both in itself and in its subordinate bodies, that seem inseparable from any modern major international activity. No thorough explanation of it therefore could qualify as light reading; that is not to say that this presentation is ponderous or obscure, but the book must be read thoroughly and carefully if the subject matter is to be absorbed.

The difficulties and problems confronting N.A.T.O. do not arise solely, or perhaps even predominantly, from the external menaces, military and political, that face it from behind the Iron Curtain. Almost as difficult is the task of establishing a basis of unity, on which the fourteen member countries can co-ordinate policies that deal not only with armed forces, but with their inseparable economic and political infrastructure (to use an unpleasing piece of jargon that seems inevitable in discussing these matters). We are faced, as the authors tell us, with "the formation and organization of a permanent association of free countries for the protection and advancement of common ideals, not merely a temporary military alliance." The limelight may be centred on General Ridgway and Lord Montgomery, but they can accomplish nothing unless Lord Ismay and his permanent staff can produce the fundamental answers required of them.

This is a short and compact book, and therefore contains a great deal of compressed information which may prove somewhat indigestible. The difficulty, however, lies in the nature of the subject matter, not in the manner in which it is presented. The authors face the problems concerned in a straightforward manner, and their style is equally direct; for example they are not above describing many of the proposals before N.A.T.O. as "still half-baked." Their announced intention is "to analyse, not to solve the problems of creating an international community," and where they consider that the solution is not in sight by present methods they do not hesitate to say so. It is only a pity that, writing as they do for the general public, they are prevented by security considerations from full disclosures of the real progress that has been made and may soon be expected.

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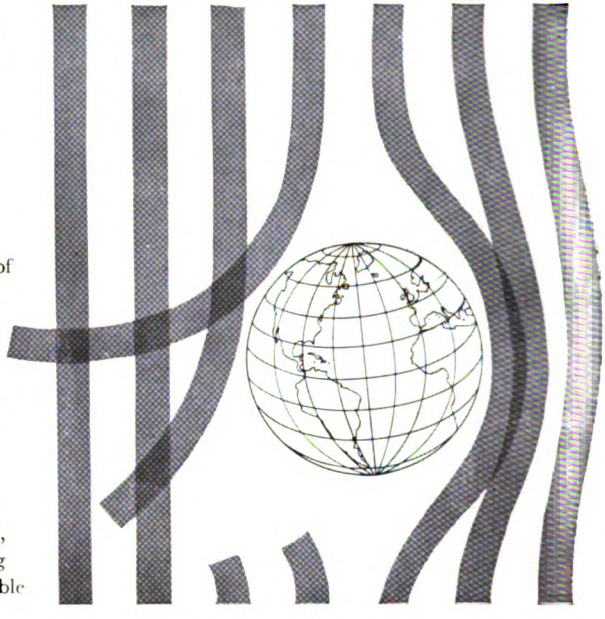
Today, our world is free . . . and we must keep it so. Everyone knows that our future security is vested in our air power, in our ability to design and produce and maintain strong, powerful squadrons of fighters and bombers. Heading the list of such aircraft are those built by our companies : the Hawker Hunter, finest of all interceptor aircraft ; Gloster Javelin, world's first twin jet Delta all weather fighter ; Avro Vulcan, world's first four jet Delta bomber. All these are now in super priority production, together with the Armstrong Siddeley Sapphire and Double Mamba jet engines.



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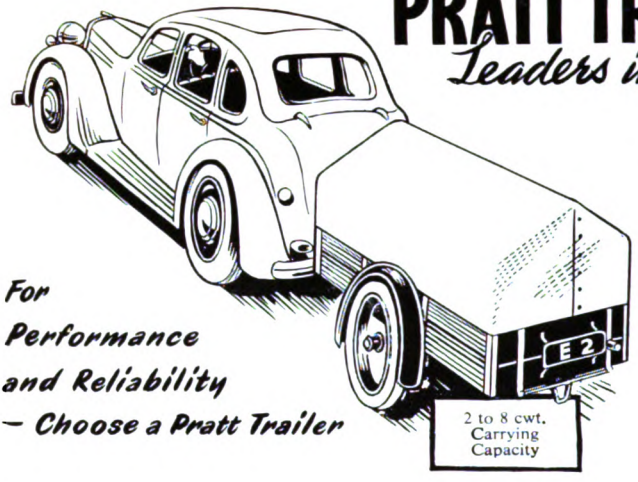

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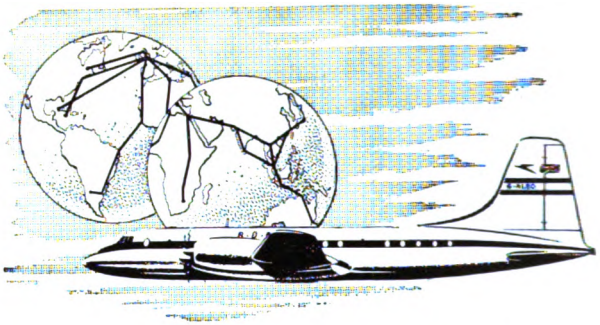

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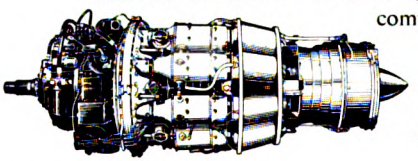

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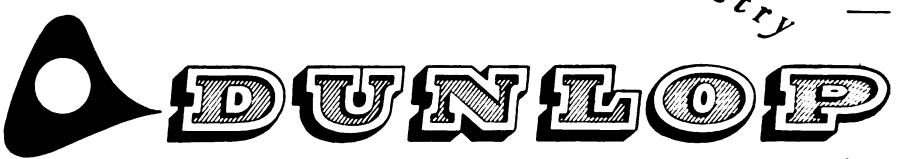

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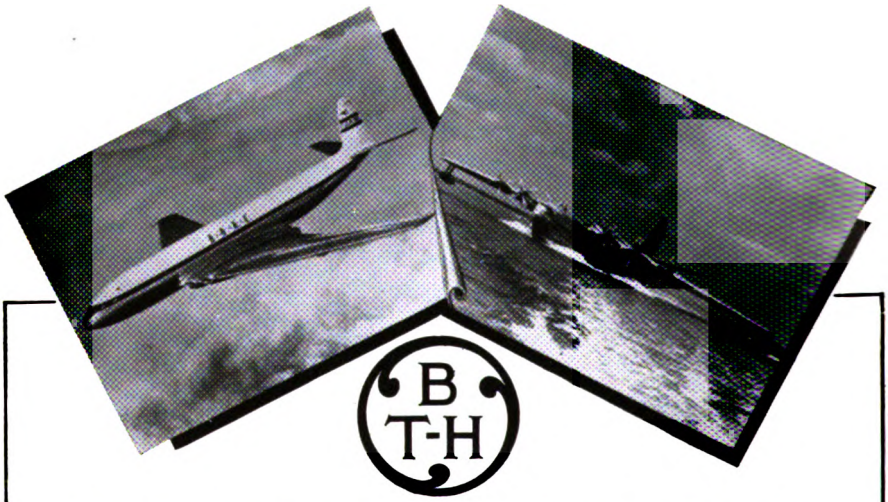

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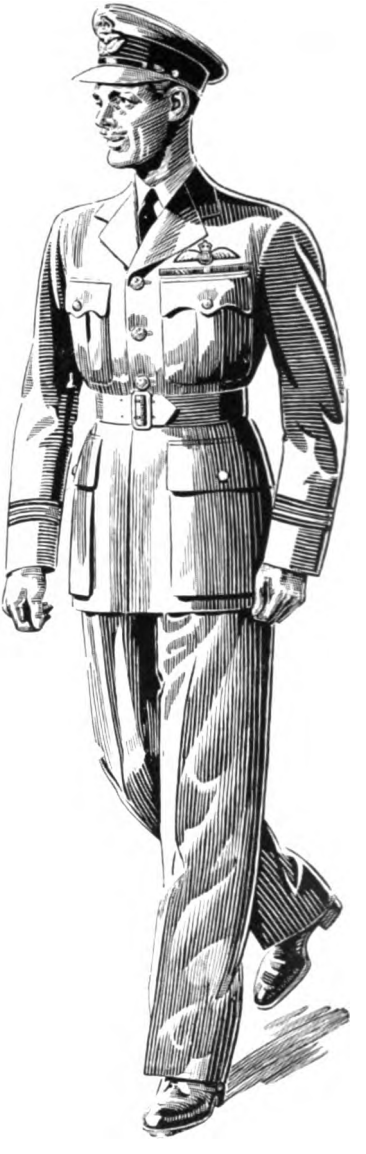

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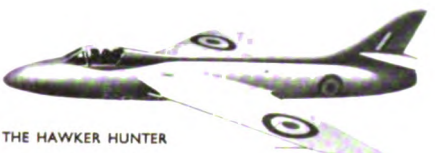

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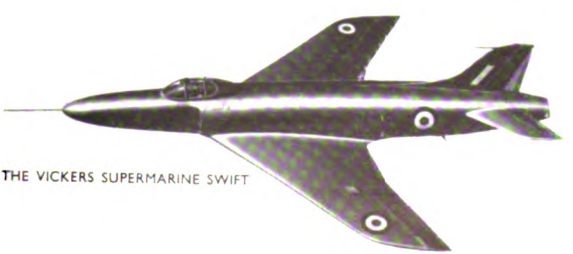

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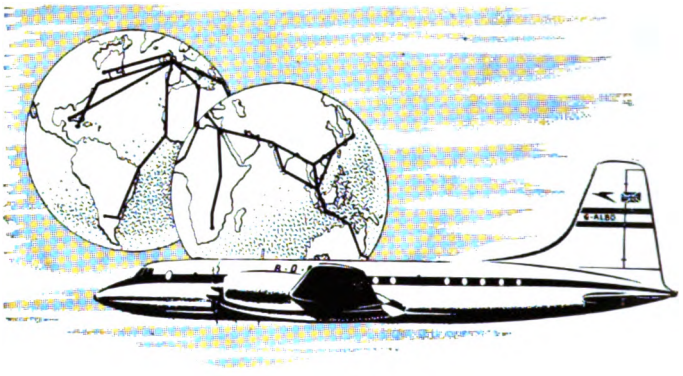

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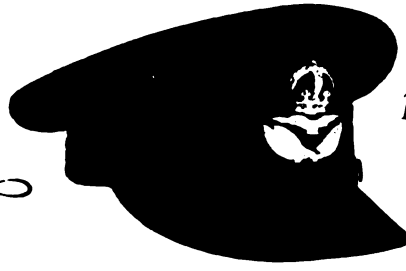

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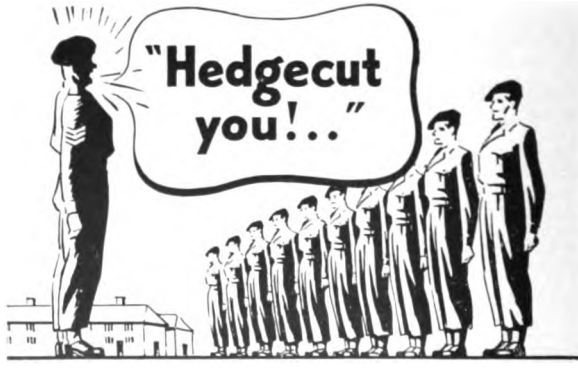

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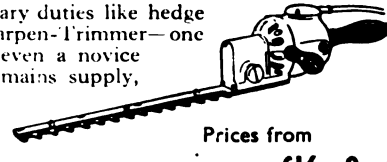

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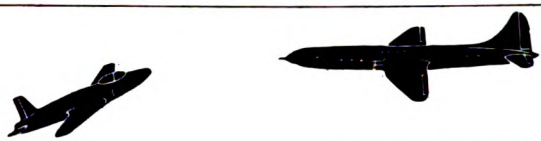

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Assisted by an Air Ministry Advisory Committee of members of the Royal Air Force and Air Forces of the Commonwealth

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EDITOR.

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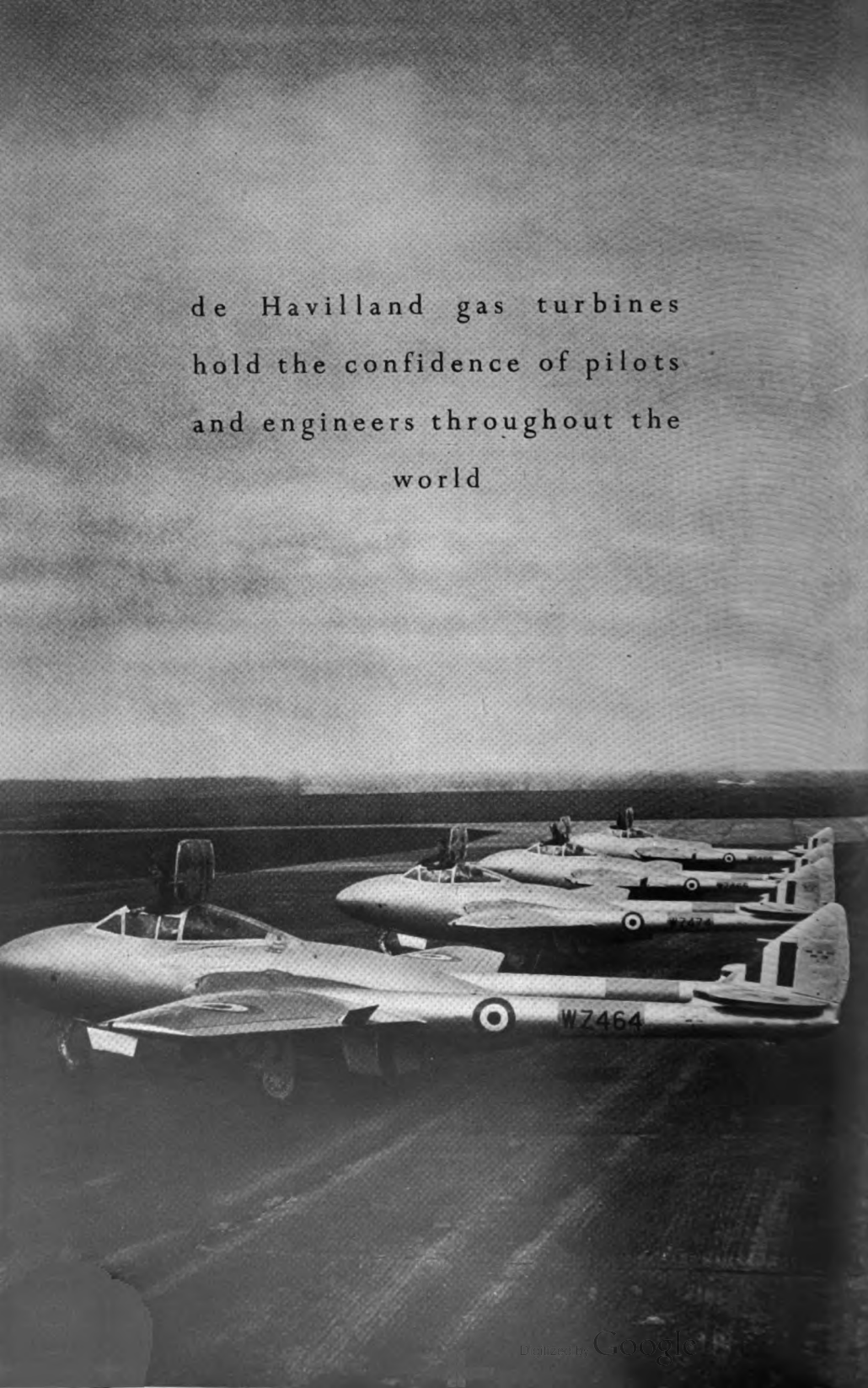
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HER MAJESTY QUEEN ELIZABETH II
CROWNED 2nd JUNE, 1953

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THE R.A.F.'s CORONATION DAY

By E. Colston Shepherd

ALL ranks and every command of the R.A.F., at home and overseas, were represented in the great procession through Central London which followed the crowning of Queen Elizabeth II. The Service provided elements in the Guards of Honour at Buckingham Palace and at Westminster Abbey. Several thousand officers, airmen, cadets and apprentices lined parts of the route. Eleven R.A.F. bands took their various parts. All the Marshals of the R.A.F., except the Duke of Windsor, were in the procession. The Chief of Air Staff rode with the Chiefs of the other Services; the Vice-Chief of Air Staff with the other principal Service A.D.Cs. In the Abbey, Marshal of the R.A.F. Lord Portal of Hungerford, in charge of the Sceptre with Cross, was in close attendance on the Queen during most of the ceremony. The final salute of the day was given by fighter aircraft of the R.A.F. and the R.C.A.F., flying in wings line astern across the front of Buckingham Palace while Her Majesty stood on the balcony.

[Air Ministry Photo

CHIEF OF THE AIR STAFF

Air Chief Marshal Sir William F. Dickson, G.C.B., K.B.E., D.S.O., A.F.C., who rode with the Chiefs of the other Services in the Coronation Procession.

A distinguished part in the proceedings from start to finish was borne by the R.A.F. At the beginning of the day, the Queen's Colour was paraded at Buckingham Palace and the R.A.F. Central Band helped to provide the music there. At the end of the day two R.A.F. bands and a great column of men and women 1,886 strong, followed by two more bands, led the now rain-soaked procession back to Buckingham Palace.

All told, nearly 8,000 officers, airmen and airwomen were on duty in Central London. Of that number, 4,540 were engaged in lining the route and a further 624 were held in readiness for disposal by the police if required. The whole turnout was a credit to the Service in appearance and bearing and to the thorough training in drill and endurance which had prepared it for its share in the day's duties. This applies equally to the 114 officers and other ranks of the W.R.A.F., who appeared for the first time in their smart new service dress caps and were marching, at the end of the long, damp journey, with all the precision, briskness and vigour which had throughout evoked admiring comment. In the same leading wing were the bigger contingents of the R.A.F. Volunteer Reserve and the R. Aux. A.F. and a small detachment of Princess Mary's R.A.F. Nursing Service.

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THE ROYAL AIR FORCE CONTINGENT

The R.A.F. Contingent in the procession. This was preceded by Nos. 1 and 2 Regional Bands of the R.A.F., and commanded by Air Commodore B. C. Yarde, C.B.E.

Its rear was brought up by a unit of the R.A.F. Regiment which displayed its customary skill in ceremonial both in the procession and in its guard mounting with the Queen's Colour at Westminster.

The day had begun in reasonably good weather and the procession to the Abbey, including senior officers from the Air Ministry, A.O.Cs.-in-C., and R.A.F. members of the Air Council all mounted, besides the Marshals of the

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R.A.F. in carriages, was warmly cheered, especially by the thousands of children on the Embankment. When Her Majesty had been crowned and the big parade set out on its longer route, rain was falling heavily. To the R.A.F. section at the head, led by No. 1 Regional Band from Cosford and No. 2 Regional Band from Wyton, came the first of the cheers from the immense drenched crowds, as it led the way up Whitehall, along Pall Mall, up St. James's Street and westwards along Piccadilly to Hyde Park Corner and thence through Hyde Park to Marble Arch and Oxford Street. From the middle of Oxford Street, for about forty minutes it led the way through the open-order ranks of other R.A.F. men lining the roads, almost to the edge of Trafalgar Square.

In the second wing were small parties from overseas, from Rhodesia, Germany, the Far East, Malaya, the Middle East and Malta—including a few locally-enlisted airmen—and then bigger contingents from No. 90 (Signals) Group, Home Command and Maintenance Command. The third wing consisted of three big parties from Transport Command, Technical Training Command and Flying Training Command with a sprinkling of cadets from the two latter commands. The three combatant commands made up the fourth wing—150 officers and airmen each from Coastal, Fighter and Bomber—and their broad columns of smartly-marching men set a splendid standard for the rest of the procession. Behind them came the R.A.F. College Band from Cranwell and the R.A.F. Regiment Band from Catterick. Much farther behind, in the carriage procession, were the nine Marshals of the R.A.F., among them Lord Trenchard. They shared the drenching with the younger men, for no carriage hood was raised.

[Air Ministry Photo

THE DUKE OF EDINBURGH

Not only does he take a keen personal interest in the R.A.F. but shortly before the Coronation qualified for his "Wings"

While this fine parade was in progress under low clouds, the fate of the fly-past had been in doubt. When rain ceased in London, the cloud base remained low, both on the line of approach and near the saluting base. With the prospect of some slight improvement in the late afternoon, the fly-past was first set back half an hour. Then, for the sake of safety, the ambitious plan of flying three wings in arrowhead formation at the head and the rear with a wing of the R.C.A.F. in box formation between them, was abandoned. This form of salute had been magnificently accomplished in rehearsal. Now it had to be changed so that the wings flew in line astern, still with the Canadian wing in the centre of the stream. The intervals between wings was also greatly increased. Whereas the whole parade of 144

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[*Air Ministry Photo*

Chaplains of the R.A.F., followed by R.A.F. Aides-de-camp to Her Majesty, in the Coronation Procession.

Meteors of the R.A.F. and 24 Sabres of the R.C.A.F. was originally due to pass across the Mall in fifteen seconds, the procession on the day occupied three minutes in passing the saluting base, an interval of thirty seconds being allowed between wings.

Fighter Command provided all the Meteors in the fly-past. They came from Squadrons 1, 41, 54, 56, 63, 64, 65, 74, 245, 247, 257 and 263. The R.C.A.F. Sabres were from Squadrons 410, 439 and 441. The wings, flying independently from Duxford, Tangmere, Biggin Hill, North Luffenham, Wattisham, Horsham St. Faith and Waterbeach, made their rendezvous near Canterbury and thence passed over Dungeness to Bexhill, where they turned north for their first check-point at Biggin Hill, closing up as they approached. Course from there to the Mall was held with the help of a succession of orange flares set on the ground and also of a responder beacon placed in Regent's Park beyond the Mall. In its modified shape, the fly-past was beautifully done. Each wing in excellent formation passed over the prescribed spot in the Mall, some 600 yards east of Buckingham Palace. Her Majesty and the Duke of Edinburgh sighted each wing while it was still well to the south of Westminster and followed it until it disappeared to the north. The young Duke of Cornwall, with his parents, evinced a keen interest in each renewal of the air salute.

For all concerned in these celebrations, duty was made more arduous by unpleasant weather, yet training and fine spirit gave to the share taken by the R.A.F. a competence, vigour and zest which contributed much to the satisfaction of the crowds and, no doubt, to the gratification of Her Majesty. The Service, on this showing, deserved to lead the procession and to conclude the salutes. Air Vice-Marshal Lord Bandon, who commanded the fly-past, and Air Commodore B. C. Yarde, who was in command of the procession contingents, earned the warm congratulations they received; and every officer, airman, cadet, apprentice and boy entrant, on the march, on guard, lining the streets and playing in the bands, behaved worthily.

[EDITOR'S NOTE: The author is Aeronautical Correspondent to *The Sunday Times* and late editor of *The Aeroplane*.]

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REASON OR SENTIMENT?

By Air Marshal Sir Robert Saundby, K.B.E., C.B., M.C., D.F.C., A.F.C.

In the debate in the House of Lords last April on the White Paper "Statement on Defence, 1953" (Cmd. 8768), Lord Tedder, in the course of a closely reasoned speech, called for a reconsideration of the whole field of defence, and a reassessment of the responsibilities of the three Services, in the light of modern conditions. He said that he was slightly shocked to hear the Minister of Defence use the word "share" when referring to the Defence Vote, giving the idea that the vote as a whole was "a piece of cake to be divided up amongst the three Services with a minimum of squabbling."

He went on to say "Surely we can agree that the rational way to deal with defence is, first, to examine the various threats that face us, their nature, their relative likelihood and the extent to which they endanger the security of this country, and then, having analyzed them, to consider the various possible means and methods of defence and finally to select the method and means calculated to be fully effective and at the same time most economical. It is only at that stage that the question arises as to which Service or Services undertakes the responsibility for a particular aspect of defence and which vote is to carry the burden."

It was regrettably clear, however, from the debate which followed that this reasonable proposition is far from commanding general assent. The fighting forces still have their champions in Parliament, whose advocacy of the claims of their particular service is based on very different premises.

Discussing the White Paper, Lord Tedder said that it referred to "the burden on our national economy—a very welcome reminder, since loose purse-strings leads to loose thinking and certainly not to economy of force; but unfortunately I can find no indication that that burden has been relieved by that vigorous, difficult but healthy process of selection, which alone ensures real economy." He felt concerned about this, and recalled what happened at the beginning of the last war, when "no effective selection was made. We tried to be strong everywhere and only succeeded in being weak everywhere, at sea, on land and in the air, with the result that we spent the first three years of the war fighting in the last ditch, fighting not to win the war—that came later—but to prevent losing the war. Then after September, 1939, we went over to the 'blank cheque' basis."

Each of the three Services, with a blank cheque in its pocket, drew up an ambitious programme of expansion, which was not related to our war strategy and which could have been achieved only if the entire resources of the country had been placed at its disposal, leaving nothing for the other two.

The Air Force sinned in this way no less than did the Army and Navy. We drew up a colossal scheme for a first-line strength of 4,000 heavy bombers, but in fact we had no more than about 1,400 at our disposal by the time the war ended. Nor could we have advanced much beyond this figure, unless the demands of the Navy and the Army had been drastically cut down and their resources made available to the Air Ministry.

But before we start blaming the Services for their unthoughtful behaviour, we must appreciate that, in the absence of any serious effort by the War Cabinet to formulate our war plans and allocate resources to the three Services in accordance with their responsibilities, they had no other practicable course.

When it was seen that none of the Service expansion programmes could be realized for lack of resources, there was no attempt to concentrate on essential weapons and equipment and cut down on those not vital to the success of our

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war plans. Instead, each Service suffered an equal cut in its programme.

Lord Tedder went on to say that if, as a result of diminishing world tension and an easing of the "cold war," the Government was subjected to heavy pressure to reduce our defence expenditure, he felt that there would be great danger that once again there would be no assessment of what was vital to our security and what could be safely pruned. He said "There would be little chance in that atmosphere of carrying out a thorough reassessment of the defence problems followed by a reallocation of defence effort rigidly to ensure maximum power with the minimum of expenditure. No; the inevitable demand in such conditions would be an all-round percentage cut, with the inevitable and, I am sure, fatal result of all-round weakness."

This is a matter which very closely concerns us in the Royal Air Force. Lord Trenchard reminded the House that the Prime Minister said at Boston, Mass., not long ago, "For good or ill, air mastery is today the supreme expression of military power, and fleets and armies, however necessary, must accept a subordinate rank." And on 27th December, 1943, Field-Marshal Montgomery said "First of all you must win the battle of the air. That must come before you start a single sea or land engagement. If you examine the conduct of my campaigns you will find that we never fought a land battle until the air battle was won." If these propositions are true, and if the Government believes that they are true, then it is clear that air power is the dominant factor in our security and in our ability to win a war if it should be thrust upon us. It follows that the fullest development of our air power should be our primary concern. We may even have to face the disagreeable prospect of cutting our expenditure on other forms of defence, remembering always that the security of our sea communications is vital to our continued existence.

Lord Pakenham, commenting on the speeches of Lord Trenchard and Lord Tedder, looked at these questions from a different angle. He appealed to the Royal Air Force to get rid of its inferiority complex. He said "That is really the great difficulty about them. They are like newcomers who are always calling attention to their presence . . . They want to seize some of the valued positions of the Navy . . . " And again, "They really must not try to live at the expense of other people."

If one may judge from these remarks, which though out of their context are not unfairly quoted, Lord Pakenham does not take into account which Service is best fitted, under modern conditions, to carry out a given task, but seems to regard such questions as matters of Service privilege which ought not to be invaded. Of course, no one can deny that the Royal Air Force, bringing the third dimension into war, is a newcomer. It is but little more than forty years since the Royal Flying Corps was established. There are still many people who, although they pay lip service to the supremacy of air power, strongly resent its being allowed to "seize some of the valued positions" of the older Services or "live at the expense of other people." We, in the Royal Air Force, have not got an inferiority complex, but it is vital to our country's security that we should keep on hammering away until those whose minds are still essentially "two-dimensional" wake up to what is happening in the modern world. When will we learn that we cannot afford—no nation can afford—to superimpose adequate air power on an unchanged pattern of defence organization? Other less important things must go, and we must make up our minds as to how much of our former set-up is essential today and tomorrow. The truth is that in allocating responsibilities and resources to the Services we pay far too little attention to logic and reason, and too much to sentiment and tradition.

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But Lord Winster would go further than Lord Pakenham. He urged the Minister of Defence to make it clear that he exercised complete impartiality as between the three Services. By this he did not, apparently, mean that the Minister should allocate tasks and resources fairly in accordance with the contributions which each Service can nowadays make to the solution of our defence problems. On the contrary, he seemed to regard the Minister of Defence as the father of three children, whose parental duty obliged him to allot to each child an equal share of his resources, without regard to the fact that their tasks might be widely unequal. He said "it is not enough to be impartial: as Minister of Defence you must be believed to be impartial. The Navy does not consist only of officers; there is the lower deck, too. The lower deck will take a great deal of convincing that when the Army gets £518,000,000 in the Estimates, and the Navy gets only £314,000,000, there is not a bias against the Navy somewhere or other." It would not seem, from the context, that this was intended to be a joke, and so we must suppose that Lord Winster believes that resources should not be allocated to the Services in accordance with their approved responsibilities, but that the Estimates should be framed with the object of convincing the rank and file —presumably of all three Services—that they are being fairly and impartially treated.

It seems to me deplorable that, when the responsibilities of a Service are curtailed through changing circumstances, and its Estimates reduced accordingly, this logical process should be resented as indicating a bias against that Service, and condemned as unfair treatment. No doubt this attitude of mind is rooted in a feeling of affection—even perhaps of reverence—for methods and weapons that have served us well in the past. But our history shows that it is a weakness that has cost us dearly in lives and money, and at times has brought us near to defeat, and it is one which we certainly cannot afford to indulge in this atomic age.

Ever since 1918 the Royal Air Force has been in a difficult position. For the first few years Lord Trenchard, then Chief of Air Staff, fought unceasingly to preserve the existence of the Air Force as a separate Service. In those early days this defensive struggle absorbed much of our energies at the top, but nevertheless the Air Staff formulated new doctrines, based on the experience of the First World War, which proved sound when the Second World War came upon us. Our air power saved us in the Battle of Britain, when our armies had been withdrawn from Norway and France with the loss of almost all their weapons and equipment, and the Navy had learned by experience that it could operate in the English Channel and the southern North Sea only under the "umbrella" of land-based air power. Then Bomber Command seized the initiative and carried out, in co-operation with the United States 8th Air Force, a strategic bombing campaign that defeated the German air force, and alone created the conditions which made the successful invasion of Europe practicable.

All of this was made possible by the Air Staff sticking firmly to its principles in the face of opposition, and even ridicule, by the older Services. Had they not done so, or had Lord Trenchard failed to maintain the unity of our Service, our defeat in 1940 would have been total and irrevocable.

The Royal Air Force has had to fight at every step to gain recognition for its views and, although those views have been proved right in the severe test of war, we still have to fight against the forces of apathy, conservative resistance to change, and Service partisanship. In so doing, we are sometimes accused of suffering from an inferiority complex, which impels us to push ourselves in where we are not wanted, and sometimes of attempting to seize the "valued positions"

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of other Services, or trying to live at their expense. We are blamed for disturbing inter-Service harmony, and generally for behaving rather like a cuckoo in the nest. Perhaps it does seem rather like that to some people, but the future security of our country depends on our continuing to do all we can to ensure that our defences are kept up to date and that, in this air age, we do not make the fatal mistake of relying on obsolete methods and weapons.

To those of us who served in the Royal Air Force between the two world wars, and especially to those who served in the Air Ministry, there could be no pleasanter prospect than that of harmony and co-operation between the Services. But so long as we can see no serious attempt to concentrate on the provision of what really matters in the sphere of defence; so long as, in Lord Tedder's words, we "allow past habits to masquerade as traditions and consequently to determine policy," so long must we struggle to make the people of this country alive to the peril in which they stand. We must, somehow, make them aware of the vital importance of organizing our defence forces, to quote Lord Tedder once more, "to meet the conditions and tempo—the tempo particularly—not of the wars of the past but of a possible future war." Till we see that being done, we must take every opportunity of bringing the facts of modern life before those who would fain slumber and forget.

The people of this country must be made to realize how drastically things have changed. The ocean of the air knows no shores or barriers, and our island position and the predominance of our sea power, which have saved us from serious invasion for nearly a thousand years, have gone for ever.

During our long period of dependence on sea power our national outlook has grown fixed. It has become almost a part of our nature—a national characteristic—and it is not very susceptible to reasoned argument.

But we must find the means to change it, or we shall have no hope of survival. As Lord Trenchard put it, winding up his speech in the debate: "For 200 years everybody has been aware of what the Royal Navy has done for this country. Boys and old men were watching always that we did not let the Navy down, and rightly. Now, unless the leaders of all parties, of all institutions and of all organizations get that same feeling about the air and the air battle fleet, the long-range bombers, as we had for the Navy, then, instead of being the great nation that we still are, I fear that we shall be amongst those who 'also ran'."

This, then, is the great task that lies before us. We dare not shrink from it, for if it is not done by airmen, it will never be done at all.

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OPERATIONAL TRAINING IN THE ROYAL AIR FORCE

By Group Captain J. R. Gordon-Finlayson, D.S.O., D.F.C.

"Man is the Architect of Victory in Battle: Machines and Weapons are his Bricks and Mortar."

[As a point of interest the latest types of operational aircraft are inset throughout the article.]

IN peace the whole front-line strength of the Royal Air Force devotes itself to operational training. In the event of war there would be a long and inevitable delay before the aircraft industry of the democratic peoples could produce anything like all the aircraft and equipment we would need, and before the expanded flow of war-time aircrew could reach the front line. Moreover, the critical phase of another war might well begin and end long before new aircraft and aircrew could be provided. The front line must therefore be ready not only to hold the fort but to win the first, and perhaps the only, round!

This means that the aircrew we have in our peace-time force must be able to use their aircraft that much more efficiently and economically, without relief or respite, until the industrial and training organizations can be mobilized and be given time to produce the goods. Time must be won! The front line must therefore be supremely battleworthy in every sense of the word—spirit, endurance, discipline, knowledge, precision. Even if mass-production standards have to be accepted later on, until these can be balanced by quantity we must be able to rely upon *quality*. And we all now know in the Navy, Army and Air Force that unless we are ascendant in the air there is no hope for effective operations of war. Thus, *quality* in the air is the key to security and ultimate victory.

Flying

Learning to fly is the prerequisite of fighting in the air, but a superb aviator is valueless in the front line unless he is also a fighting man. Yet, given the fighting spirit, the better he is also as an aviator the better use he will make of his aircraft and weapons. Thus in the air we want men of ardour as much as skilled aviators before we start training them for war. Indeed, we want men of the highest moral, mental and physical calibre that the country can produce.

Leadership

Flying fit and skilled in airmanship, fighting fit and ready to fight, the master of his complex equipment, commander of his formation or crew, a leader and captain of aircraft is responsible for directing a major unit of Her Majesty's fighting strength. In the face of the enemy he fights a lone battle in the spacious air, and on his skill, judgment, courage, initiative and leadership will depend the success or failure of the operation. In no other sphere of war is an officer expected to carry such heavy responsibilities at such an early age.

Precision

Given these qualities amongst leaders and captains, *precision* is the keynote in all air operations. The fighter unit must take off at a moment's warning, climb at the best speed and power on an accurate course in close formation, manœuvre on to the enemy without a second's faltering, fire with deadly accuracy and pick up the radio aids that will guide it back through murk and

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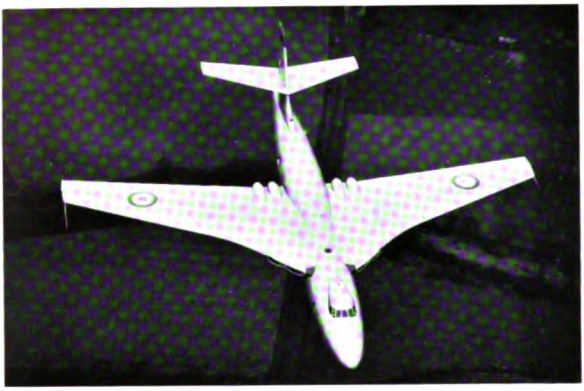

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VALIANT

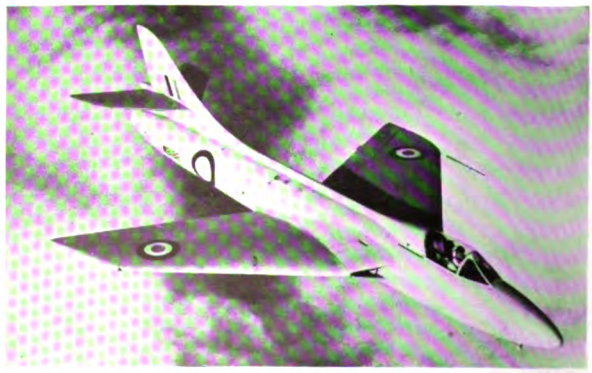
darkness to base before its limited fuel is exhausted. Or, in the tactical role, a squadron must take off in formation, fly with few navigational aids to a pin-point on the map, dive down to launch its rockets, re-form and return to base through storm and cloud. The bomber crew must navigate many hundreds, even thousands of miles, above the weather, by star and radar, identify the unseen target, direct its bombs within a few yards from 40,000 or 50,000 feet, and then bring the valuable aircraft safely home to fight another day. The maritime crew must take off in all weathers, navigate with absolute accuracy whilst criss-crossing many thousand miles of featureless ocean, keep constant watch by eye and radar for periscopes and vessels at sea and enemy marauders in the air, exploit its search devices with unfailing skill, and attack in a trice before the enemy submarine can dive to safety.

Specialization

As science finds new methods to assist the airman in destroying enemy aircraft in the air, in bombing the target and in finding and attacking enemy submarines, so the technical devices become more complex and more specialized, and so also do the aircrew techniques in each role. Consequently the type of training for pilots or navigators in, for example, the bomber role bears less and less resemblance to their training in the maritime role. Today, these trends have reached a stage where the mastery of a single role virtually absorbs the whole flying lifetime of an airman, and it becomes wasteful and inefficient to switch crews unnecessarily from one role to another. In war we may be forced to accept a somewhat lower standard of aircrew as in the last war. Nevertheless, the cost and production rate of modern aircraft will limit the number of crews required, and this will allow us to raise the selection standards and give the new aircrew more thorough training. (Some comparative cost ratios are: Spitfire / Hunter, 1 : 5; Mosquito / Canberra 1 : 5; Lancaster / Valiant, 1 : 7 or more.)

The Changing Pattern

These factors have necessitated an extensive re-moulding of our operational training system. The following summary gives a glimpse of the cause and effect of modern trends.



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(*a*) The development of operational tactics is so closely interlocked with the development of new equipment and techniques that the responsibility for the operational training of new aircrew cannot be dissociated from the responsibility for their operational employment.

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METEOR II

(*b*) Since the potential of each fighting aircraft has become so great and its cost so prodigious, aircrew must reach a commensurately higher standard of flying and operational competence before they are fit for their front-line duties.

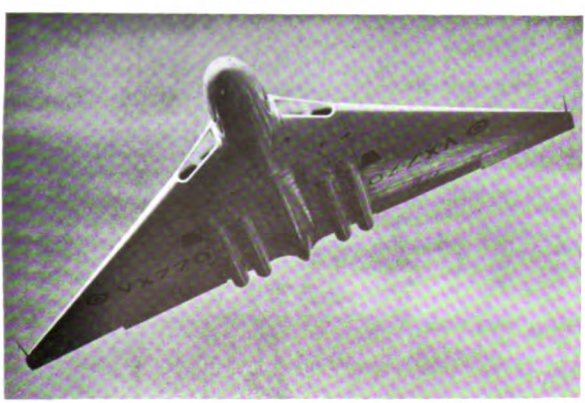
(*c*) Since aircrew techniques are so much more complex and since one inefficient member of an aircrew may vitiate the efforts of the rest, far more individual training is necessary before a member of aircrew can advantageously be matched within a complete crew.

(*d*) Since front-line aircraft are so costly to produce and run, even greater reliance must be placed on the use of other aircraft, often the ex-operational type, for operational training (e.g. Varsities for bombing training; Brigands for A.I. navigation training; and Lancaster G.R.IIIs for maritime training).

(*e*) An intensive period of crew training is the necessary sequel to individual training and prelude to squadron service. This can be most appropriately completed in parallel with conversion to the front-line type itself.

(*f*) Once in a squadron, crews must begin the long and arduous task of progressively improving their efficiency in frequent operational practice, navigational flights, and squadron, wing, group, command and inter-allied exercises. Regularly tested in accordance with the various rating and categorization schemes, crews will become fit for combat and the best will ultimately become fit for the most arduous operational tasks.

(*g*) Fighting efficiency is so dependent upon intimate team work between each member of aircrew that far greater emphasis must now be laid upon keeping the same individuals together in one crew throughout their operational tour.



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VULCAN

(*h*) Since it may take at least three years for a crew to achieve the highest standards of operational performance, tours must be lengthened accordingly.

(*j*) Where the knowledge and experience

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SWIFT Mk. I

gained during a tour in one role affords the most appropriate training and preparation for another, crews will graduate through one role to complete a second tour on another (e.g., day to all-weather fighters; light to medium bombers; medium to long-range transport; including also suitable variations such as all-weather fighter and transport crews to medium bombers, etc.).

(*k*) To relieve operational commands of as much of the training load as practicable, a continuing review must be made of the constantly changing details of each new technique as it affects each aircrew member with a view to isolating the training elements common to two or more roles and transferring them to earlier training stages in Flying Training Command (e.g., radar has now become a basic element in navigator and signaller training).

(*l*) In other instances training that was formerly common to several roles or commands has become special to one role only (e.g., free gunnery is required only in Coastal Command).

(*m*) Since the front line is very largely equipped with high-performance jet aircraft, it is now considered essential that pupil pilots should be introduced to the problems, tempo and attitude of mind of modern high speed/altitude flight at the earliest practicable stage in their flying training (i.e., Vampires will shortly replace Harvards, etc.).

Hitting the Target

Having got the enemy in your sight, can you hit him? Having got over the target, can you hit it? Having found a U-boat, can you sink it? *Can you*?—because if you can't you nullify the huge cost and labour of building the aircraft, equipment, weapons, ground installations and the whole national organization backing our air power.

Practice makes perfect and, in addition to O.C.U. training, several new schools, courses and other training facilities have been introduced during the past few years. For fighters—more air firing in O.C.Us. and squadrons; more practice camps; higher and faster towing; more practical ciné gun exercises; an A.I. school for all-weather navigators, and courses

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NEPTUNE M.R. Mk. I

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for day-fighter leaders, air-to-air and air-to-ground instructors. For bombers — intensive bombing training at the recently established Bombing School, to be the fountain-head of all bombing knowledge in the Service; and more adequate range facilities and exercises for squadrons. For maritime aircraft—the School of Maritime Reconnaissance has been running for the past two years; and better co-ordination of anti-submarine training facilities for basic, pre-operational and continuation training, including a training flight at Malta where home-based squadrons can avail themselves of the better weather and of the ships and submarines that the Navy have at their disposal in the Mediterranean. All these facilities are provided for the single purpose of increasing accuracy. We must be able to hit the target!

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JAVELIN

Economy

You may say that to allow cost to govern the shape of the Air Force is to allow the tail to wag the dog. But if the country goes broke there won't be any Air Force at all. The best form of operational economy is higher standards of efficiency—halve your aiming error and you multiply your operational effort by four or, put in other terms, cut your cost to one quarter. Towards this end we must define the aim of our training as precisely as possible, avoid wasting time on unimportant details or through laxity of control or system, concentrate on essentials and make every stage in training and every flight and practice a real step towards perfection. For instance, it would be prohibitive to continue the erstwhile practice of giving common training to pilots and navigators irrespective of the roles in which they are eventually to be employed. There is room for infinite elaboration of this theme, but economy of words is also necessary! Operational efficiency is our aim, and economy in all its facets should be a first principle in attaining it.

Synthetics

Another measure calculated to raise standards and at the same time afford economies is the wider use of synthetic training devices. Here we must be careful not to expect too much. However realistic devices like operational flight trainers (flight simulators) may be, there are limits to such training on the ground. This expensive trainer can simulate all emergencies in the air, and its value for familiarizing crews on the layout of new aircraft and for perfecting procedures and emergency drills must be balanced against the fact that the psychological element of risk cannot be simulated. The less experienced a crew, the more important this factor is likely to be. Thus its value may be proportional to experience—excellent for saving flying hours in the conversion of well-qualified aircrew, but unable to replace the essential minimum of flying which will be greater for inexperienced than for experienced crews.

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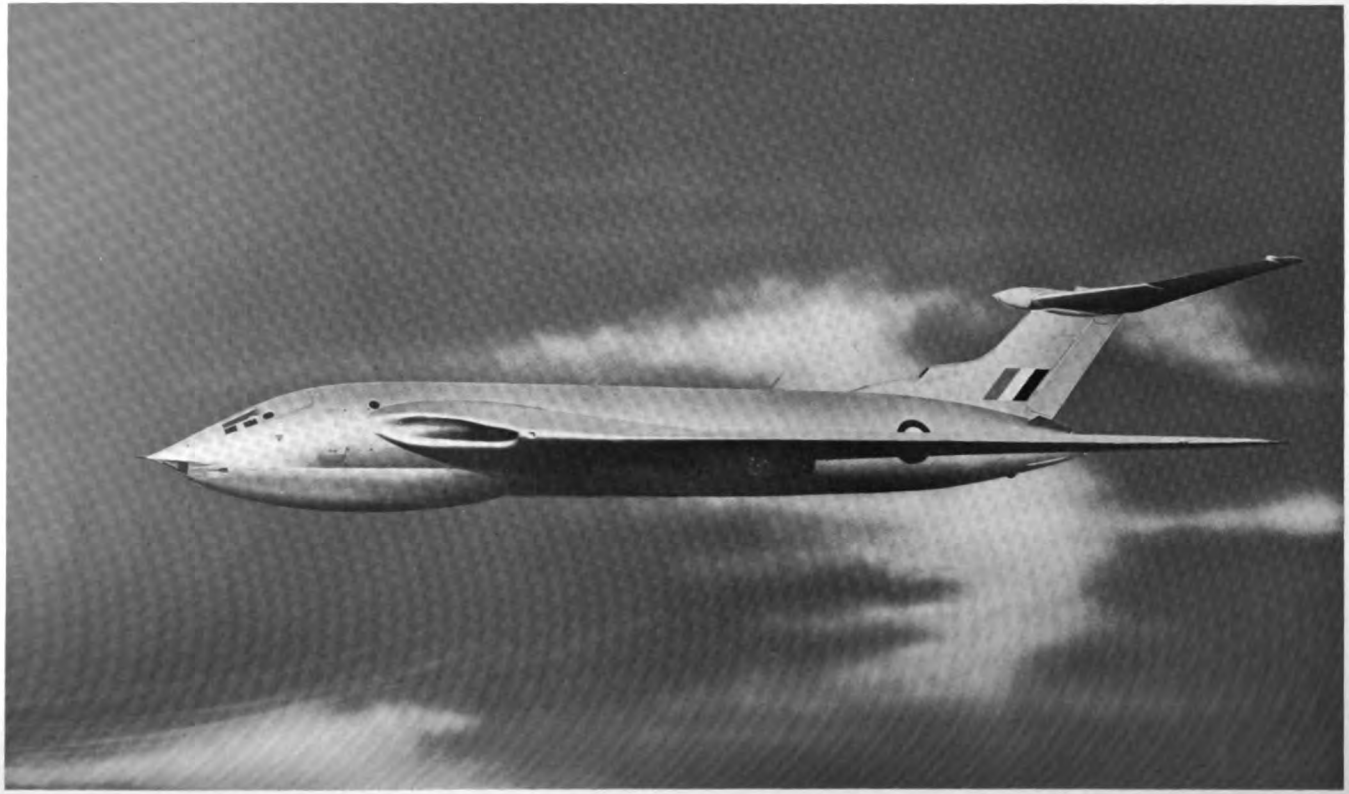

THE VICTOR

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Amongst the many new devices are a new link trainer attuned to jet performance; operational flight trainers for all new medium bombers; maritime trainers for A.S.V., search and sonobuoy exercises; and a more efficient D.R. trainer. Apart from these there are nearly a hundred other items of synthetic equipment from G.H. trainers and ejection seats to ordinary instructional models of cockpits. If used fully and properly these can make a major contribution to efficiency and economy.

Physical Fitness

There is an organization through which the best scientific and medical brains of the country can be brought to bear on the ever-changing problems of human efficiency and endurance as much as on the technical needs of modern air warfare. We strive to maintain the technical lead at all times and in so doing we must also ensure that our aircrew are physically fit to exploit their aircraft, equipment and weapons to their deadliest purpose. The importance of physical fitness in an air force cannot be over-emphasized. Not only does it mean resistance to sickness and disease, but it is the necessary condition for quick reactions, endurance under stress and fatigue and, above all, of high morale.

The Supreme Factor

The sharpening of skill and knowledge learned during continuous and diligent operational training must be cemented by sound discipline if the Royal Air Force is to be a thoroughly effective instrument of war. This means that each man must understand the intention of his superiors and be prepared to do his utmost at whatever costs to achieve the aim. Thereafter, the factor which converts an effective instrument of war into a battle-winning force is *good morale*. At all levels, this is the fruit of inspired leadership.

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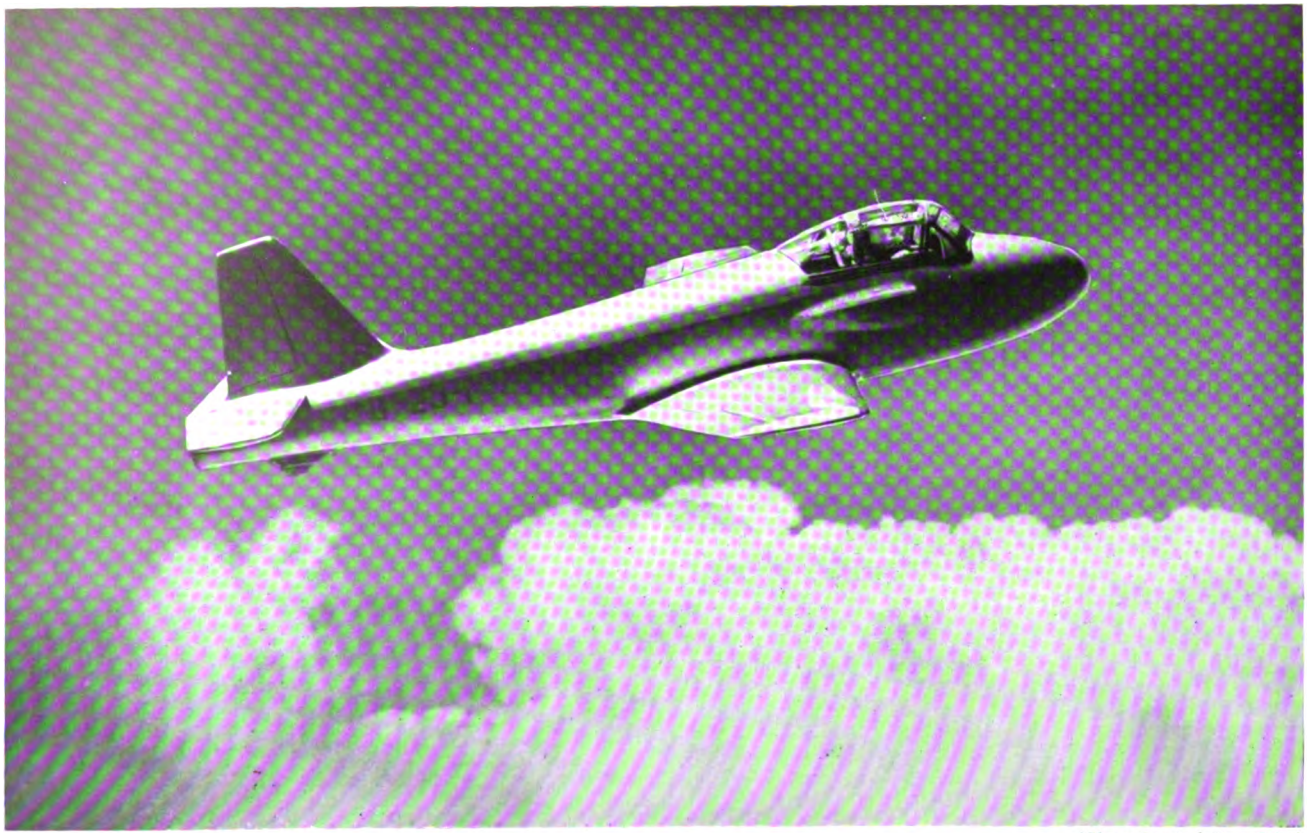

[*Photo: Percival Aircraft Ltd.*

MODEL OF JET PROVOST

For all-through Jet Training in Flying Training Command

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A STREAMLINED TRAINING PROGRAMME

By John W. R. Taylor

The author acknowledges the kind assistance of A. N. Kingwill, O.B.E., A.F.C., A.R.Ae.S.

NINE months ago we described in the Royal Air Force Quarterly the sequence of current R.A.F. flying training, and the types of aircraft used at basic, advanced and operational training units. Now all that has changed. The Harvards, Oxfords, Prentices and Wellingtons will gradually disappear. Even the trim, efficient Balliols, with only eight months of training service behind them, will be switched to other, and probably more warlike duties. As a result, if all goes according to plan, every new pilot in the Royal Air Force will in time complete his flying training in a simple Provost-Vampire sequence, followed, as appropriate, by Varsities, Canberras, Meteors and other, still secret, conversion trainers.

There are good reasons for the sweeping changes, announced during this year's debate on the Air Estimates in the House of Commons. Standardization and simplification of equipment bring obvious benefits, including reduction in the number of different airframe and engine "spares" that have to be stocked, and in time and cost of training groundcrews to service a varied collection of types. But that is only half the story where Flying Training Command is concerned. Most important aim must always be to complete training of pupil pilots as economically as possible, by shortening the time required to train them to jet operational standards, without any lowering of those standards.

It is not easy to combine such conflicting objectives. The obvious way to achieve economy is to cut down the number of stages in a pilot's training; so that, instead of starting on a low-powered *ab initio* aircraft like the Chipmunk, graduating to a Harvard and then to a Balliol, followed by jet conversion trainers, he starts on something perhaps mid-way between a Chipmunk and Harvard, and then goes straight on to something a lot more powerful. The problem was to find the right sort of aircraft in the primary class—simple enough to be handled by novices, but sufficiently advanced to simulate all the characteristics of the type of aircraft the pupils have to fly at a later stage of their career.

The search for such an aircraft began about ten years ago, when Air Ministry experts concocted Specification T.23/43, calling for an entirely new type of training aircraft. But before considering this specification, it is interesting to study the line of argument that produced it.

World War II was at its height, and the training organization was stretched to the limit, turning out thousands of new pilots and aircrews needed to man the warplanes pouring from our factories.

Despite the most careful selection of pupils, wastage was still a major headache; not so much because a proportion of trainees failed to make the grade—that was to be expected—but because a lot of the failures did not show up until after many hours of instruction. This was bad, not merely in terms of expenditure of aircraft hours and instructors' time, but because some pupils, having failed in their ambition to become pilots, resented being posted to other duties and suffered a severe loss of morale.

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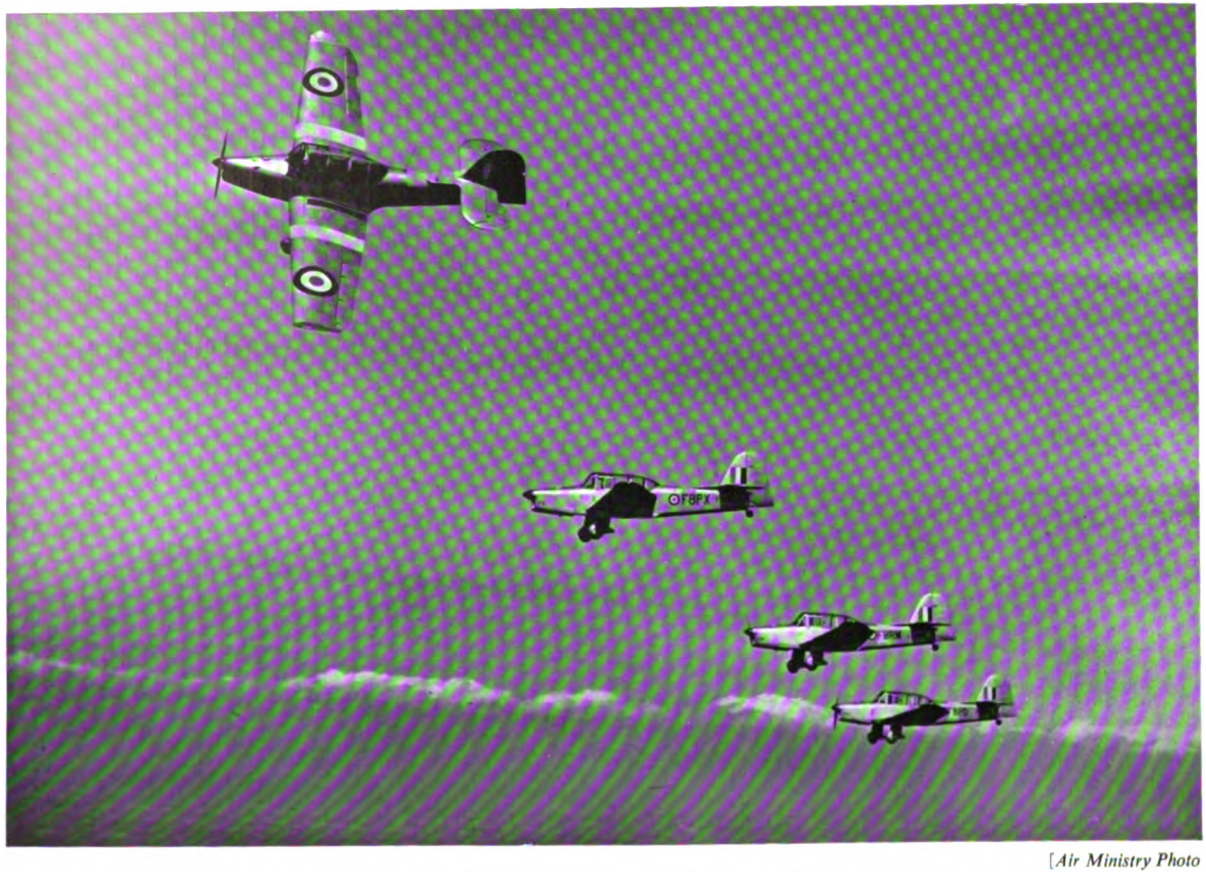

[Air Ministry Photo

PERCIVAL PRENTICE T. MK. 1 PRESENT BASIC TRAINER OF THE ROYAL AIR FORCE

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The simple *ab initio* trainers then in use did not help matters. They were cheap to build and easy to service; and were so easy to fly that pupils could be got off solo in the shortest possible time. Undoubtedly, for this reason, they helped pupils to acquire early skill and confidence. But they also passed all and sundry on to the next stage of training, and a proportion of the "sundries" inevitably fell by the wayside when they found themselves on more powerful, more complex aircraft.

Specification T.23/43 aimed, therefore, at producing a training aircraft that would show up unlikely candidates as soon as possible after they started flying. Major problem, and the most difficult to spot before a pupil starts flying, is his ability to do half a dozen things at once. The vital importance of this is obvious when one considers the case of a fighter pilot landing in bad weather or at night. He has to fly almost by instinct while he watches his instruments, controls his engine, lowers flaps and undercarriage, talks over the RT and keeps a sharp look-out for other aircraft. With speeds what they are today, reaction to any emergency must be instantaneous, and unless a pilot possess inherently this ability to react quickly, he is of little use to a modern air force.

So Specification T.23/43 proposed fitting in the trainer's cockpit as many as possible of the important controls, knobs and gadgets that are found on operational aircraft, without making the aircraft basically difficult to fly. To give the pupil more confidence, and enable his instructor to watch his reactions and demonstrate visually how to handle the controls and equipment, the specification also laid down that pupil and instructor should be seated side by side, instead of in tandem. The aircraft had to have, among other things, more power than earlier *ab initio* trainers, extensive radio and blind-approach aids, an all-round field of vision from the cockpit and, of course, be sturdy enough to withstand repeated "circuits and bumps."

Unfortunately, the requirements were too rigid and, although the winning design to the specification—the Percival Prentice—was destined to put in many years of good service, its low stalling speed, high all-up weight and lofty 360 degree-vision cockpit canopy had a detrimental effect on rate-of-climb and control response. Consequently, the Prentice never achieved the popularity of its veteran predecessor, the Tiger Moth.

Nor did it result, as planned, in the early weeding out of all unsuitable aircrew candidates; but the fault here lay chiefly with the flying instructors who, at a time after the war when the Service was getting all too few volunteers, preferred to struggle on with hopeless cases long after they should have been suspended.

But the Prentice did prove one important fact—that suitable pupils had no more difficulty in getting the hang of its more complex equipment than their elder brothers had had in Tiger Moths. This, at least, confounded the die-hards who prophesied only disaster if raw recruits were put on anything but the simplest types of aircraft.

It was, in fact, quite clear that the process could be carried a stage further, by introducing an aircraft so versatile and flexible that it would do the job of both the Prentice and Harvard classes of trainer. So, after a great deal of careful thought, the Air Ministry drew up Specification T.16/48, calling for a more powerful trainer than the Prentice, but retaining side-by-side seating and a fixed undercarriage. Wisely, they did not make the requirements so rigid as in the T.23/43 Specification, so that designers were given more scope to develop their own ideas.

Altogether, some thirty designs were submitted, two of which—the Percival P.56 and Handley Page H.P.R.2—were eventually built. Both were flown

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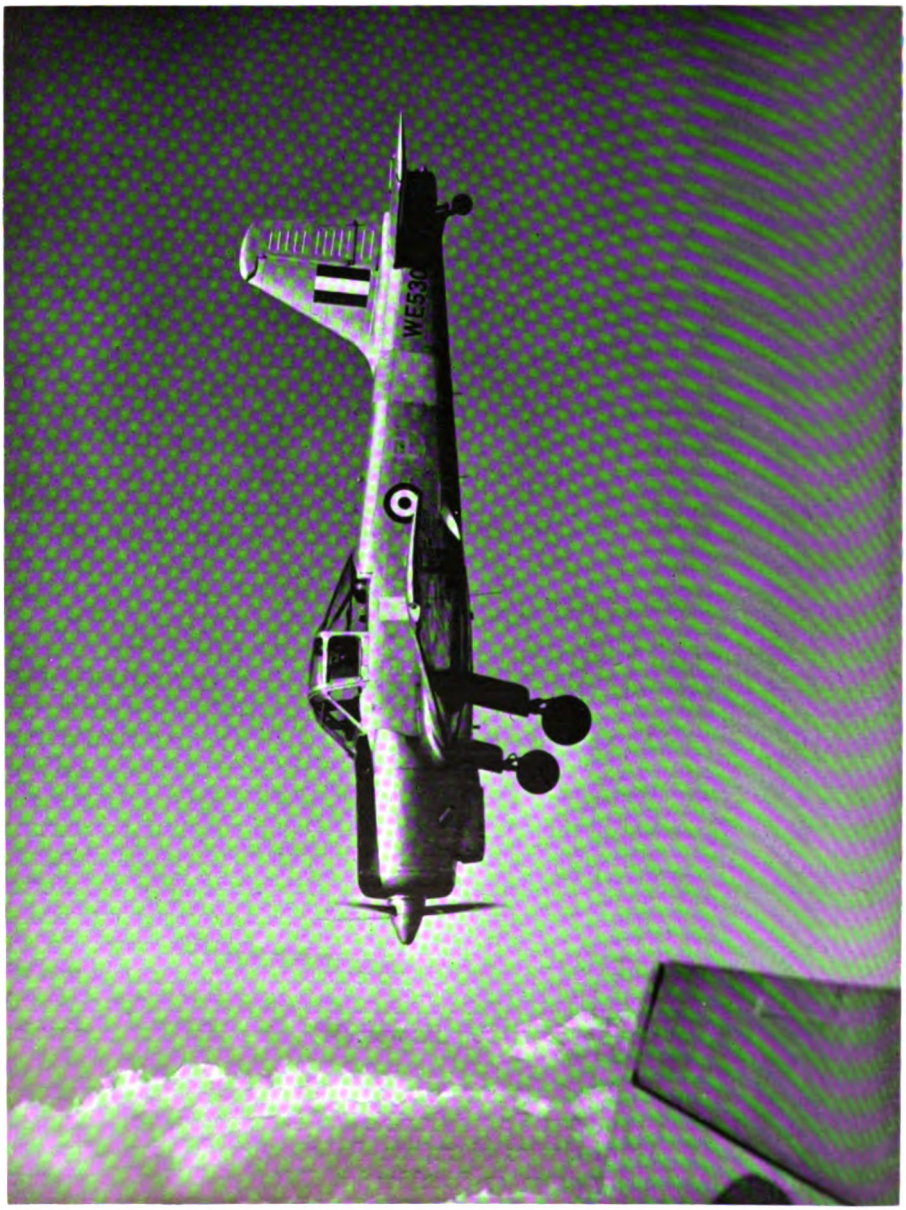

[*Air Ministry Photo*

PROVOST AFTER LOOP

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originally with Armstrong Siddeley Cheetah engines; but availability of the Alvis Leonides made possible even better performance, and both types were flight tested with this power plant. After competitive trials, the Leonides-powered P.56 was ordered into production as the Provost, and it is this aircraft that Flying Training Command pupils will soon be handling.

Those who have seen the prototype demonstrated at the S.B.A.C. Display will not need to be told that it is a pilot's dream come true. Its rate of roll and general handling qualities are reminiscent of the finest fighters; yet it is simple and straightforward to fly and land, and sufficiently light on the controls to show up immediately any ham-handedness.

Its 550 h.p. Leonides gives it a top speed of 200 m.p.h. and rate-of-climb of 1,560 ft./min. at 5,000 ft. Very comprehensive equipment is carried; so that by the time a pupil has finished his time on a Provost, he will have few qualms on graduating to the Vampire trainer which, although a jet, repeats the side-by-side seating arrangement and is one of the simplest, most delightful to fly of all jets.

This, too, is important, because the thought of flying a jet is still sufficient to set loose "butterflies" in the stomachs of many pupils. It is, of course, purely a psychological reaction, resulting from methodical, uninformed Press reports of every accident involving a jet-propelled aeroplane; and present-day R.A.F. instructors are busy persuading pupils that there is nothing very unusual or frightening about a military jet. In fact, they are now the conventional aircraft of the R.A.F., having displaced their piston-engined forebears some time ago. A vice-free trainer like the Vampire T.11 is of the greatest possible help in putting over this fact, and there is little doubt of the high standard of training that the Provost-Vampire sequence will produce.

But ideas on training, as on every other aspect of aviation progress, never remain static for long, and already one school of training experts are clamouring to replace the excellent little Provost with a jet-plane. They argue that an all-jet fighter and bomber air force needs all-jet training, so that pupils graduating on to jet advanced trainers do not have to waste time unlearning lessons taught by piston-engined primaries.

It is a sound enough argument, because the piston-engine pilot learns to rely instinctively on such things as propeller discing effect to create drag to slow his landing approach; on the immediate acceleration that follows when his throttle is rammed forward; and on the "artificial" elevator and rudder response resulting from propeller slipstream even at low air speeds. None of these factors applies to a jet; and, of course, on graduation to a jet-trainer, the pupil finds himself confronted with an entirely different set of cockpit instruments and controls. They are unlikely to confuse a promising pupil for long; but the danger is in reaction to an emergency. This must be instinctive and instantaneous, and if a pilot has to unlearn the technique for getting out of trouble which he was taught during his early, piston-engine training, the chances of his doing the wrong thing are multiplied.

Nor is the proposal to put recruits on a jet right from the start as drastic as it sounds. The French have already proved with their Turbomeca "baby-jet"-powered series of trainers and light aircraft that a low-powered jet is no more difficult or dangerous to fly than a piston-engined light plane. In fact, in many respects it is easier. Engine handling is more simple; there is no swing during take-off; and a tricycle undercarriage makes landing easier than a tailwheel undercarriage.

Economically, too, the balance is probably in favour of the jet. Its fuel con-

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[Air Ministry Photo

VAMPIRE T.11 TRAINING AIRCRAFT

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sumption would be about three times as great as that of a piston-engined trainer; but its aviation kerosene costs only a third as much as 100-octane petrol. No special storage facilities and transport would be needed, as it would use the same fuel as jet-powered advanced trainers and operational types; but its higher rate of fuel consumption would require more storage capacity than for an equivalent number of piston-engined trainers.

Maintenance costs would be lower, because of the comparative simplicity of a jet. Engine changes could be accomplished much more quickly, and airframe—especially instrument—maintenance reduced by the jet's absence of vibration.

Finally, the jet would almost certainly cost less initially than its piston-engined counterpart; and training costs would be further reduced by the fact that pupils could spend a higher proportion of their total training time on cheaper, low-powered primary trainers.

These arguments seem so logical that the Air Ministry has already placed orders for a trial batch of jet-powered "primaries." Again logically, they will be developments of the piston-engined Provost, using the same basic airframe, but with the refinement of a retractable nose-wheel undercarriage. As a result, they should combine the advantages of all-through jet training with the proved flying qualities of the present Provost.

The jet-Provosts will each be powered by an Armstrong Siddeley Viper turbo-jet, giving 1,640 lb. thrust for a dry weight of only 455 lb. This engine was developed originally as an expendable unit for the Australian Jindivik pilotless target aircraft; but has proved so reliable and durable in service that it has now been cleared for manned flight.

This, then, is the over-all picture of the R.A.F.'s new, streamlined training programme, and the reasoning behind it. It is too early to prophesy whether the jet-Provost will, in fact, supersede entirely its piston-engined brother in time; but the changeover looks extremely likely, making Flying Training Command, like Bomber and Fighter Commands, an all-jet force. Furthermore, the jet-Provost looks as if it might prove more economical still by doubling as a light-weight, highly manœuvrable piece of "flying artillery," of the type described in the January, 1953, ROYAL AIR FORCE QUARTERLY ("Economy in Ground Attack," pages 5-11)—but that is another story!

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FIFTY YEARS OF AVIATION —AND WHAT AFTER?

By Flight Lieutenant C. Krizek

IT was a shock to realize that the first human flight was made only fifty years ago. On the 17th December, 1903, one of the Wright brothers, Orville, took off in their biplane from the mono-rail at Kitty Hawk, N.C., and flew for fifty-nine seconds at thirty-one miles per hour.

It would be foolhardy to forecast the progress of aeronautics during the next fifty years. But as aviation, both military and civil, is so much in the limelight today, perhaps it would be of some interest to speculate tentatively about its future trends. Let us start by putting the present situation in perspective against the background of past human endeavours, conscious or incidental, to conquer the air.

HISTORICAL BACKGROUND

The history of aerodynamics is sometimes divided into three periods:[1] the first period dates from antiquity to the publication of Newton's Principia (1687), the second from that epoch to the paper read by Lanchester before the Birmingham Natural History and Philosophical Society (1894), and the third, from then to the present time.

In these three periods we meet with many prominent figures; in the first, Aristotle, Leonardo da Vinci, Galileo Galilei; in the second, Newton, Daniel Bernouilli, Euler, Lagrange, d'Alembert, Rankine, Stokes, Helmholtz, Kirchhoff,Cayleigh, Lord Kelvin; in the third, Lanchester, Joukowski, Kutta, Prandtl, Glauert, Karman and others.

The first and the early part of the second period are included here in the history of aerodynamics, although its researches and speculations were, with two exceptions, not determined by the problems of human flight.

Aristotle (4th century B.C.) conceived his "medium theory" only to prove the impossibility of a vacuum. Twenty centuries later Newton's researches on fluid resistance were started only to prove that cosmic space, contrary to the Cartesian and Aristotelian philosophies, was not occupied by a material continuous fluid.

The first exception in this regard was Leonardo da Vinci, whose notes on the flight of birds and sketches of flying machines were collected and published only in recent times.[2] After an ingenious study of soaring and flapping flight, Leonardo definitely stated in 1506 the possibility of man solving the problem of mechanical flight.

From Leonardo da Vinci we must come down to Sir George Cayleigh in the first years of the last century, to find the problem of flight resumed in scientific study. Sir George Cayleigh established in 1809 the problem of mechanical flight in these terms:[3] "To make a surface support a given weight by the application of power to the resistance of air."

[1] R. Giacomelli, *Historical Sketch*, Aerodynamic Theory, Vol. I, p. 305. (Springer, Berlin, 1934.)

[2] R. Giacomelli, *The Aerodynamics of Leonardo da Vinci*. (The Journal of the Royal Aeronautical Society, December, 1930.)

[3] *Nicholson's Journal*, London, 1809-10.

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In 1842 Henson[4] patented a monoplane with a steam engine, two propellers and provided with vertical and horizontal rudders to steer it.

From 1866, when the Royal Aeronautical Society was founded, the problem of human flight was tackled in earnest in many countries, both experimentally and in practical ways. Soon all the elements of the aeroplane became known or available, except two, the absence of which caused the failure of all attempts to fly: lateral control and the light engine.

After the advent of the petrol engine the problem of lateral control was solved by the Wright brothers[5] who, with great persistence and true scientific intuition, developed their successful flying machine of the 1903 Kitty Hawk flights. Thus at last, after nearly 100 years, the gap between the idea and the realization of mechanical flight was closed.

The Chairman of N.A.C.A. says[6] of the Wright brothers: "Had they not succeeded, it now seems certain that someone else would have. In 1900 men had confidence that desired effects could be had by finding the appropriate cause. The physical world seemed a mechanism to be manipulated: Nothing seemed impossible, not even flying through the air. The time was ripe, the incentive great, and the basic concepts of the aeroplane and its propulsion existed."

Afterwards the impetus of the two world wars helped to bring us, in the short span of fifty years, from the slow, fragile machine of the pioneer days to the supersonic aircraft of today.

PROBLEMS OF TODAY

Taking speed records of propeller-driven aircraft as a measure of progress, the increase in forty-seven years has been from about 40 to nearly 500 m.p.h. At that rate it would take the next fifty years to bring the speed record to 1,000 m.p.h. But we know from Press reports that this speed has already been reached by some of the experimental jet aircraft.

The advent of the jet engine is indeed a new single major factor which must profoundly affect aeronautical progress. The big thrust of the jet engine now available has already forced the aircraft designer to make several changes in airframe design in his quest for supersonic speeds.

It is well known that the first obstacle to such speed is the so-called sonic barrier. At Mach 1, and slightly below and above, the aerodynamic laws are temporarily not valid. The lift suddenly decreases and the drag considerably increases with the result of dangerous instability of the aircraft.

The designer has found so far four ways of overcoming this difficulty: The back-swept wing, the wing of very thin aerofoil section with sharp trailing edge, the delta wing and, if the latest reports have any foundation,[7] the disc-type (or saucer-shape) aircraft.

The first one was devised by Buseman and its advantage is that not the relative speed, but only its component perpendicular to the leading edge of the wing is effective. The effect of the sonic barrier is not eliminated, only delayed, and the effectiveness of this device varies with the angle of the sweepback.

The very thin wing was used on experimental supersonic aircraft. It proved its advantage at transonic speeds, but at higher supersonic speeds it will have

[4] British Patent No. 9,478.

[5] U.S. Patent No. 821,393.

[6] Jerome C. Hunsaker, *Aerodynamics in the Mid-Century*, p. 12. (Yale University Press, 1952.)

[7] *R.A.F. Flying Review*, p. 11, April, 1953.

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considerable design drawbacks with regard to the second obstacle of supersonic flight, which we shall mention later.

The delta wing, an old idea of Dr. Lippisch, has good qualities at transonic and supersonic speeds owing to its low thickness/chord ratio and to its back-swept wing laying behind the conical shock wave set up by the nose of the fuselage. But it is generally conceded that owing to the variation of shock wave angle with speed, the advantage of the delta wing ends around 1,500 m.p.h.

The aerodynamics of the disc shape are not yet generally known, but it can be seen that one advantage of such an aircraft, at present reportedly in the design stage, would be a low thickness/chord ratio upon which drag is primarily dependent at supersonic speeds. The speed of 1,500 m.p.h. is claimed for this project.

However different these four aircraft may seem from the Wright brothers' biplane, they still conform to the basic formula of Sir George Cayleigh of 1809. The surface (i.e. the wing) is still supporting the given weight by the application of power to the resistance of air.

Once the sonic barrier was crossed, there was another, more formidable, obstacle, viz., aerodynamic heat. When the air is brought to rest at high speeds the rise in temperature is proportional to the square of the speed. According to Sir Harry Garner,[8] at a height of 40,000 feet and at a speed of 1,000 m.p.h. the temperature rise is more than 100 degrees C. and new problems of cooling have to be faced. At still higher speeds the temperature rise will cause a serious deterioration in the strength of most present-day materials.

Another authority on the subject, N. J. Hoff,[9] declared in his lecture "Structural Problems of Future Aircraft" that aerodynamic heating will cause fundamental changes in aircraft design. In the subsequent discussion[10] the picture of the thin wing with a sharp leading edge getting hot and "curling up" was conjured up.

As the lift generated by a wing is proportional to the square of the speed, at very high speeds a smaller supporting surface will be needed, and "fundamental changes" forecasted by Hoff may mean the restriction of the wing surface, or more.

Air Commodore F. R. Banks, Principal Director of Engine Research and Development, Ministry of Supply, goes still further. The Air Commodore says :[11] "It is an interesting speculation that a fuselage, say, the size of the Bristol Britannia, could sustain itself in level flight at about 1,000 m.p.h. without wings by its own 'lift' and that of its own tail surfaces—provided, of course, it was of the right shape for supersonic speed. This may sound attractive for the future, but apart from the enormous power required, wings would be needed for take-off and landing and at all speeds below the maximum."

We shall return to this later, but we may take note here of the fact that any necessary departure in aircraft design from Sir George Cayleigh's formula will require a much greater power than is available today. What is the prospect of the future?

FUTURE DEVELOPMENT OF THE THRUST

There are today four sources of high thrust either in use, under development or under consideration: the turbo-jet, ram-jet, rocket and nuclear engine. The

[8] 1952 Wilbur Wright Memorial Lecture.

[9] *The Aeroplane*, p. 359, 14th September, 1951.

[10] *Ibid*, p. 365.

[11] "Body Lift." *Aeronautics*, p. 46, February, 1953.

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great disadvantage of the first three is so far a very high fuel consumption, and of the fourth the uncertainty about the time of its realization and the great weight, so far, of the reactor's screening.

There are three ways known to improve the relatively poor fuel economy of the jet engine: higher compression of the combustion air, higher gas temperature (depending on the material of turbine blades) and the heat exchangers.

As to the future trend in jet engine development, a graph used by Air Commodore Banks in his lecture "The Birth of an Engine"[12] shows that by 1960 we may expect a sea-level static thrust of 20,000 lb., and with reheat around 28,000 lb.

It is rather difficult to talk with any certainty about the prospect of a nuclear aero-engine. It seems that the time estimate given sometimes as twenty years is contradicted by Gordon Dean, Chairman of the United States Atomic Energy Commission. He is quoted as saying:[13] "I think in the next decade you will probably have a plane in the air, the power of which comes from the reactor . . . I think you would have the beginning of an atomic air force within a decade."

And Major-General D. L. Putt, U.S.A.F., has written:[14] "I think we can safely predict a nuclear-powered aircraft capable of flying around the world at supersonic speed without refuelling."

It is known that the first nuclear-powered submarine is being built for the United States Navy, and that two contracts were placed in the United States of America for the nuclear-powered aircraft.

FUTURE TRENDS IN AIRCRAFT DESIGN

There is a propelling force in technology which drives men and stirs up new ideas. Research presses against the apparent limitations to further progress. At any given time the limitations appear to be formidable because our knowledge is limited. The present achievements of aeronautics would undoubtedly amaze the pioneers of fifty years ago, but there is no indication that the curve of aeronautical progress has begun to level out. We can be sure that the aeronautical research and engineering development will continue, both to extend our knowledge and to apply it in new ways at an even greater rate.

Remembering that we are speculating here about what may happen in ten to fifty years from now, we may safely contemplate here speeds well above Mach 2. We have seen that at such speeds aerodynamic heat will make impracticable the use of very thin wings, or of any wings for that matter, in fact, that the usefulness of Sir George Cayleigh's formula will be ended.

We have seen above that Air Commodore Banks speculated about the possibility of horizontal flight at high speed for a wingless fuselage, provided that the necessary thrust was available, and at the same time stressed the need for wings at take-off, landing and at speeds below maximum.

It may be that one day, when a greater thrust will be available, a solution will be found to these contradictory requirements by using Crocco's idea of retracting wings.[15] General G. R. Crocco proposed in 1946 the retracting wing originally as a means for crossing the sonic barrier. It seems now that this device will be more useful for overcoming the difficulties arising out of aerodynamic heat.

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[12] *The Aeroplane*, p. 551, 24th April, 1953.

[13] Reference 5, p. 21.

[14] *Ibid*, p. 22.

[15] *Aircraft Engineering*, p. 220, August, 1948.

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When speculating about the future trends of aeronautics, we might ask how fast man will eventually be able to fly. One is tempted to say "as fast as required," but obviously the speed at any given time will depend on the amount of available thrust and on our ability to cool efficiently the exposed walls of the fuselage.

We have seen that the usefulness of Sir George Cayleigh's formula is limited to the speed range roughly from 40 to 1,000 m.p.h. The helicopter can fly at speeds below the landing speed of aircraft, but in this low speed range there may be a place in the future of yet another, smaller and cheaper, means of aerial transportation. If we compare air and road transport, we may draw some useful analogies. If we take, for instance, the aircraft as a counterpart of the automobile and the helicopter as the counterpart of the motor-cycle, there remains one empty place in air transport which some future inventor might try one day to fill as a counterpart to the bicycle. And perhaps he will have to go for his ideas back to Leonardo da Vinci.

ECHOES FROM ACROSS THE ATLANTIC

AS some indication of the high opinion and interest in the authoritative nature of articles published in our JOURNAL, we note that the undermentioned were all republished in Vol. XXXII of *The Military Review*, Command and General Staff College Journal, Fort Leavenworth, Kansas, U.S.A.:

"Limited and Unlimited War," "Morale as an Objective in Warfare," "Why Stalin Waits," by J. M. Spaight, C.B., C.B.E., LL.D.; "Armoured Warfare," by Lieutenant-Colonel Sir Giffard le Q. Martel, K.C.B., K.B.E., D.S.O., M.C.; "Changing Pattern of War," by "Aquila"; "British Foreign Policy," by P. Calvocoressi; "Give the Army Wings," by J. W. R. Taylor; "Why Korea?" by Wing Commander R. F. Pemberton, M.C., T.D., M.A.; "Mackinder Today," by Wing Commander H. D. Newman; "First Line of Offence," by Flight Lieutenant G. W. W. Waddington, D.F.C.

Further requests have been received, and permission granted, to republish articles which appeared in our last number, i.e.: "Cold and Not-So-Cold War," by J. M. Spaight, C.B., C.B.E., LL.D.; "Camouflage of Airfields in the Middle East," by Geoffrey Barkas and John Hutton.

This all helps to maintain the close co-operation between ourselves and the United States Air Force.

Our editorial policy prevents the publication of any articles which have already appeared in any other journal, but we would welcome for publication *original articles* by members of the United States Air Force on matters of air interest.—Editor.

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SOVIET AFFAIRS

SOME REFLECTIONS ON THE RECENT CHANGES IN THE KREMLIN

By Flight Lieutenant F. L. Long, M.A.

The Changes in Perspective

BEFORE Joseph Stalin died last March, it was comparatively easy to decide where the power lay in the Soviet Union and who wielded that power. But today the situation appears, even now, confused and perplexing. Not only have those who shrouded themselves in the mantle of the dead leader made what may seem far-reaching changes in the structure of power, but personalities with whom we were just becoming acquainted, following the shake-up at the Nineteenth Party Congress of last October, have apparently been pushed aside and others, whom we have known for a very long time, have been asked to take more lowly positions. Hot on the announcements of these changes came a surprising number of conciliatory gestures by Soviet officials, including the amnesty within the Soviet Union and several other concessions. Was it possible that at last the hard face of Stalinism was softening, or were we in danger of misreading the signs?

We may well have been in danger of misreading the signs, assisted, it must be confessed, by some fantastic speculation in the Press on the meaning of the changes in the Kremlin. The emphasis placed by some newspapers on the possibility of revolt within the U.S.S.R. was unfortunate and a plain misreading of the decree issued by the Party and the Government on the day of Stalin's death.[1] There were suggestions that, even though revolt might be too much to hope for, yet the haste with which the changes had been made indicated nervousness on the part of the new leadership and the possibility, even, of an unseemly race for the best places while Stalin lay dying. These suggestions were linked with the amazing "mystery" surrounding Moscow's delay in announcing Stalin's last illness. There were also hints that the new leaders had plans for dissolving the Party, that "apple of our eye," to use Malenkov's much-worked phrase. Through this, and much other comment like it, ran but one thread: the changes in the Kremlin foreshadowed a revolutionary alteration of the present situation within the U.S.S.R.[2]

Thus it was that no one, it seems, found time or space to comment upon the most important feature of these changes—their strict orthodoxy and, by Russian standards, their reasonableness. Not even the Revolution of 1917, enormous though its effects were inside Russia, represented change *in vacuo*, much less the changes of March, 1953. Many unfortunate analogies were drawn with the situation that arose after Lenin's death. But there is no evidence in 1953 to indicate that the situation is in any way comparable, and much that points to an inference that it is not.

The changes of 1953, as far as can be judged, represent a logical step in an orderly process. This process began weeks, perhaps months, before Stalin died.

[1] The words used in the decree were: ". . . it is the most important task of the Party and the Government to ensure uninterrupted and correct leadership of the entire life of the country, which in turn calls for supreme unity of leadership, the prevention of disarray or panic, so as in this way to ensure the successful implementation of the policy mapped out by our Party and Government . . ."

[2] A notable exception to the general trend was the editorial comment of *The Fortnightly* in its issue of April, 1953.

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It is not impossible that Stalin himself, as Malenkov has claimed, approved the changes, in outline at least, before his death. And despite much argument to the contrary, these changes do not run counter to the interesting developments in the Party announced between August and October last year, and approved at the Nineteenth Congress held in Moscow. Essentially the changes bear out the view expressed some years ago by that eminent authority on Soviet political institutions, Dr. Julian Towster, who, while stressing the "extraordinary size of the governmental apparatus" in the U.S.S.R. and noting the Russian "habit of dynamics in political arrangement," nevertheless carefully underlined the point that "deviations from fundamental patterns are likely to be slow and few."[3]

In the vast apparatus of government in the U.S.S.R. the Party forms one pyramid of power, the State another. Both are separate, and yet both are indissolubly linked. The cement that holds these two pyramids together and provides a base upon which both stand is not, as the U.S.S.R.'s apologists would have us believe that convenient myth, the will of the Soviet people, but the potent and ever-present reality of the forces of the M.V.D., or secret police. But in this scheme of power, the three elements do not enjoy an equal status; it is the Party that has, from the earliest days of the Revolution, claimed supremacy of place. This place was "regularized," in a legal sense, seventeen years ago by the little-known Clause 126 of the Stalin Constitution. The Party, by this, is given charge of the levers of power. In examining the recent changes in the Kremlin, therefore, we should be very foolish to ignore the full implications of the Party's categoric claim to supremacy in the scheme of power. For a truly fundamental change within the Kremlin would imply an alteration in the Party's position *vis-à-vis* the levers of power; only such an alteration could produce a revolutionary situation.

The Party without Stalin

That revolutionary situation is not upon us yet, nor is it hard to understand why. We should ask ourselves two questions: first, "What has happened at the summit of power?" and secondly, "What has happened in the Party as a whole?" But before answering these questions we do need to know what the structure of power was like in the U.S.S.R. before the changes of last October.

Before the Nineteenth Party Congress there was a fairly simple arrangement of the more important Party bodies.[4] At the top stood the Secretary-General, Joseph Stalin, so far the only holder of that office in the Russian Party. Below him came the Politburo, or Political Bureau, of about a dozen men including Stalin, a body which over the years had arrogated to itself the duty of laying down broad policy in all matters of Party and State. Then, parallel with the Politburo in official status, though inferior in fact, came the Orgburo, or Organizational Bureau, which, as its name implies, dealt mainly with problems of Party organization. The limits of its field of responsibility, though, were never very clearly demarcated; and since its chief members, like Stalin and Malenkov, were members of the Politburo and Secretariat as well, its usefulness seemed to decline with the years.[5] Answerable to the Orgburo was the Commission of Control, whose duty it was, by police methods, to check upon

[3] Julian Towster, *Political Power in the U.S.S.R., 1917-1947* (O.U.P. (New York), 1948), pp. 407-9. A diametrically opposite view, it must be noted, has been put by Sir David Kelly in his book, *The Ruling Few* (Hollis & Carter, 1952), p. 434.

[4] See Towster, pp. 153-175.

[5] See Towster, pp. 164-168.

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discipline within the Party, in conjunction with the M.V.D.[6] The link between Political and Organizational Bureaux and the big Central Committee of the Party—itself largely a reservoir of leadership and forum for the expression of influential Party opinion—was a five-man Secretariat responsible for conducting the day-to-day business of the Party. These bodies, taken together, formed the power-house of the Party. Below the Central Committee, stretching away in one direction, lay the executive apparatus of the Russian Party, and in the other (though it need not be considered here), the extremely complicated and little-known apparatus of the international Communist movement.

The structural arrangement of the subordinate bodies of the Party followed the pattern established at the top. Thus, accountable to the main Committee in Moscow were the sixteen committees of the constituent republics of the Union, each led by its nucleus of powerful Party men responsible to a secretary. Accountable to the republican committees were the committees of the territories and regions, districts and towns, until finally, at the base of this great structure, we came to the nerve endings of the Party—the cell or, as the Party chose to call it, the "primary organization." These cells were the smallest units in the whole organization: none was less than three members strong; each was headed by a secretary, himself, possibly, an embryo Stalin. The democratic façade of congresses, conferences and meetings of Party members, being formal gatherings only, need not concern us.

After the Nineteenth Party Congress of last October, while significantly there were no changes in organization below Central Committee level, the situation at the Party summit seemed to have been transformed. The small Politburo, ruler of the Party since the Revolution, was disbanded, or so it appeared, and a large Præsidium of the Party, thirty-six strong, set up. "Disbanded" was not too strong a word for the Press in this country. But Khrushchev (now First Secretary of the Party), writing in *Pravda* last August, used another word, "reorganization." An analysis of the standing of the members of the new Præsidium showed that Khrushchev's description was not inaccurate; the new Statutes of the Party made the position quite clear. The Præsidium, they read, was "to *control* the work of the Central Committee," and thus, by implication, the work of the whole Party. Khrushchev put the point more bluntly. The Præsidium was being established, he said, "to *direct* the work of the Central Committee," and he underlined the point by adding that the new title "Præsidium" was "more in keeping with the functions *which are in fact at present* performed by the Politburo." When, however, the names of the new Præsidium were announced in October, the extent to which the old Politburo had been "disbanded" could be seen at once. In place of the two-tier structure of the old Politburo, a three-tier body had been created, its highest level consisting entirely of known, fully fledged members of the old Politburo. This tier (though the fact was not announced at the time) was called the "bureau of the Præsidium." Of the other two tiers, the more important seemed to be made up of eminent Party men in industry, technology and agriculture, while the less important comprised men "learning the ropes" of high government. By such a careful balance, the power of the old Politburo was enhanced rather than diminished, and a nameless supreme bureau created that could, in an emergency, rule without Stalin. The lessons of Lenin's death had been well learnt. Even the emergence of Khrushchev at this time was interesting.

[6] For the way in which Control Commission and Secret Police grew together, see Ruth Fischer's revealing book, *Stalin and German Communism* (Harvard, 1948), pp. 236, 246 and 250.

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The other changes of last October bear out this general picture of a policy of "all power to the Party summit." The Orgburo was finally abolished, its few remaining responsibilities passing to the Secretariat, which was doubled in size. The reasons for this doubling of the Secretariat's strength are still very obscure. From Khrushchev, however, came a belated admission of the growing importance of the Secretariat in the scheme of power when he said that "practice has shown that it is best to concentrate regular organizational work in one body." More especially, he pointed unintentionally to the growing power of one man, Malenkov, First Secretary of the Party, second after Stalin in the Orgburo and third after Stalin in the Politburo. By the new arrangement, most of the strings of power were placed in his hands, not Molotov's.

At the same time, there was a pointer to Beria's advancement to a place next to Malenkov in the hierarchy. The checking apparatus of the Party, the Control Commission, was given greater authority and up-graded to committee status. The first chief of the Committee, Shkiryatov, was, it is worth noting, instrumental in paving Stalin's way to power in the early twenties.[7] Now, by the 1952 Statutes, his Committee was granted the right of appointing its own representatives in republics, territories and regions. The representatives would make independent checks on the way members *and* subordinate bodies were carrying out the Party's orders. Here again we notice a tightening of the rein. Hardly surprisingly the Central Committee, once the ruling body of the Party, slipped further into the background. Nearly 140 strong in 1946, its membership by 1952 had risen to 235. It was now to meet every six months, not every four. A number of high-ranking officers of the Soviet armed forces joined the Committee, thus associating the armed forces with the Party; but nothing was done to make the Committee as a whole a more effective executive instrument. On the contrary, the leadership seemed to wish to retain it merely as a ratifier of decrees.

If these arrangements, made in October, 1952, were a reminder that the levers of power were being grasped more tightly by the ruling few, the adjustments of last March—for they were no more—showed emphatically that that grasp was not going to be relaxed. Stalin dead, Malenkov, as many observers had expected, emerged as the dominant personality. Sensibly, since he had yet to prove that he possessed the dynamic qualities of a Stalin, Malenkov focused the attention of those around him on the collective spirit (*Kollektivnost*) and the unity of the régime, but he did not fail to mention also its monolithic character. It was in keeping with this attitude that Malenkov should refrain from making an individual vow over Stalin's bier, as Stalin had done over Lenin's; in keeping, too, that he did not assume the post of Secretary-General—associated in the minds of all with but one name—but remained, for a few days, First Secretary, before handing over to Khrushchev.

This was one side of the coin; the other read rather differently. The chairmanship of the Præsidium went to Malenkov. The brief experiment of a thirty-six-man body made by the dying Stalin was discarded in favour of a more conventional instrument of power—a Præsidium of ten full members and four probationers. Of these, nine certainly, and twelve possibly, had been members of the old Politburo. Similarly, the size of the Secretariat was reduced from ten to five, though even the five became four with the disgrace of Secretary Ignatyev for lack of vigilance over the notorious "doctors' plot." In its composition the new Secretariat was distinctly Malenkovian. As for the Control

[7] See Fischer, p. 236.

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Commission, this remained unchanged, Shkiryatov at its head. Here was a formidable concentration of power in the hands of the very few.

The Soviet State under Malenkov

These few, with but one or two exceptions, run the Soviet State in much the same way as it was run in Stalin's latter days. Far too much has been made in the Press of the differences between old and new, too little of similarities. Yet from 1949 onwards there have been many signs that an "overlord" system of government was in being, though the duties of the overlords (Beria, Molotov, Bulganin and Kaganovich) were never publicly stated. Now these men have assumed the role of super-ministers of state under Malenkov. Together they make up, as it were, in attributes and abilities, a collective Stalin, Beria watching over internal security in the U.S.S.R., Molotov foreign affairs, Bulganin defence, and Kaganovich economic affairs. With Malenkov as Chairman (or premier), they constitute the Præsidium of the Council of Ministers (or inner cabinet). Beneath them comes the full Council of Ministers (or full cabinet). The main difference between this arrangement and the old is that Malenkov, upon assuming the headship of the State, did not also assume, in the Stalin manner, the chairmanship of the Economic Council, the key committee within the Council of Ministers for the co-ordination of economic affairs. This post, it would seem, went to Kaganovich, who undoubtedly possesses the best qualifications for the job.

Grouped in the interests of efficiency beneath the super-ministers are the specialist ministers (who go to make up the full Council of Ministers) and their ministries. These ministries, by a wholesale amalgamation announced on 5th March, were reduced in number by fifty per cent. without in any way disturbing the general pattern of control. But as Malenkov was careful to point out ten days later, "The measures for the amalgamation . . . were conceived . . . a long time ago, in Comrade Stalin's lifetime, together with him, and now . . . we have merely hastened the implementation of long-matured organizational steps to improve the management of State and economic activities." There is no strong reason for doubting this statement. Since, however, the efficiency of the new system had yet to be proved, a new ministry was set up charged with the task of advising the five-man Præsidium on ministerial organization. This would suggest that the new arrangements are not regarded as being in any sense final.

The tie-up of State bodies with Party bodies has never been closer. The Chairman of the Præsidium of the Party, Malenkov, is also Chairman of the Council of Ministers. Of the six most powerful men in the Præsidium of the Party, five sit in the Præsidium of the Council of Ministers. Of the thirteen highest State posts, nine are held by members of the Party Præsidium, and a further three by men who were members of the former Party Præsidium or of the Politburo. All the other members of the Council of Ministers, and most of their deputies, are influential Party men. And at the head of the Russian legislature, the Supreme Soviet, is yet another senior member of the Party Præsidium, Marshal Voroshilov, personal friend of Stalin and a great favourite among younger officers of the Soviet armed forces.

What are the Portents?

The essence of the Soviet dictatorship, we thus find, is (to borrow a phrase from Lenin) "inevitably the same" despite its "great variety and abundance of

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political forms." The important thing is for us not to become confused by sheer variety and abundance. The iron ring of control is complete, its composition, in terms of personalities, largely known, and its shape clear. The adjustments that have been made in the structure of the State-Party do not reveal any significant departure from previous practice. They have been designed to strengthen the régime at its centre and to enhance its prestige in the eyes of Soviet citizens. Changes in personnel have been interesting, and suggest that Malenkov has cast wide in selecting his team, even to the extent of bringing in men who, until recently, seemed to have been under a cloud. (The appointment of Kosyachenko, the economist, to the chairmanship of the State Planning Committee is a case in point.) But what effect these changes in personnel may have upon higher policy in the future is quite impossible to forecast. Nor can a provisional answer be given to a question often asked: "Can Malenkov fill the role that he has been called upon to play?" All that can be said is that Stalin selected him and trained him most carefully, that he long enjoyed Stalin's confidence, and that his success in his new role depends primarily upon his ability to supply a dynamic leadership. The start that he has made would seem to show that we shall see not a weaker, but a stronger Russia; not more freedom within her frontiers, but less; not a régime with a softer and more benevolent face, but one with a harder and even more brutal outline. The levers of power are in the hands of strong and determined men.

The Author, a graduate of Cambridge University, where he specialized in English, since 1942 has concentrated on Soviet problems. For five years he was in the political and strategical intelligence section in the A.C.A.S.(I)'s department, a year as editor of the B.B.C. Monitoring Service's "Russian and East European Summary of Broadcasts," and since 1946 has been a permanent lecturer on Soviet foreign policy and government, at the Royal Air Force Intelligence School. Since 1951 he has been a lecturer at the Staff College, Andover, on the geography of the Soviet Union. A member of the Education Branch, he is now a lecturer and tutor at the Royal Air Force College, Cranwell.

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SABRE v. MiG

By Wing Commander J. H. R. Merifield, D.S.O., D.F.C.

FOUR of us—Flight Lieutenants Alan Jenkins, John Nicholls, Denis Dunlop and myself—were selected from R.A.F. Fighter Command to fly a combat tour with the American Sabre Wings in Korea.

We left England on 17th April and spent six weeks at the Operational Training Unit at Nellis Air Force Base, Las Vegas, Nevada, U.S.A., where we converted on to the F.86.

We found it a delightful aeroplane to fly. It has no vices and practically no flying limitations. It will go through what is popularly called the "sound barrier" with no trouble and the controls, which are power-operated, are beautifully balanced at all speeds. One of the main reasons for this is that the Sabre has swept-back wings which minimize the effects of compressibility troubles at high speeds. Nowadays aircraft speeds are referred to as percentages of the speed of sound. A Mach number of .8 represents a speed of eight-tenths of the speed of sound. Few straight-winged aircraft are controllable at Mach numbers in excess of .82 or .84. The Sabre, as I have said, can do 1 + Mach, which is a considerable improvement.

We flew to Korea in June and were attached to two Fighter Interceptor Wings there—two of us to each wing. We flew several training missions with our squadrons and finally became combat-ready at the beginning of July. As we had expected, we found very little difference between American operational procedures and our own. Some of the terminology was a little different—for example, we had to remember to say "left" and "right" instead of "port" and "starboard," but it did not take us long to fall into line.

We all started off like everybody else as wingmen. By the time we had flown twelve or fifteen missions we were all promoted to leading elements of two aircraft and shortly afterwards flights of four.

The role of the Sabre Wings in Korea is the maintenance of air superiority over North Korea. In other words their job is to keep enemy aircraft out of the sky in order to enable our own fighter-bombers and reconnaissance aircraft to operate without interference and to prevent our own front line and rear areas being attacked by enemy air power. This air superiority is achieved by four main types of operations: (1) Interceptor; (2) fighter sweeps; (3) fighter screens; (4) close escorts of fighter-bomber and reconnaissance aircraft.

Each wing maintains a number of flights at various states of readiness from dawn to dusk. These flights are scrambled in the event of enemy activity being detected by the early warning system, and vectored on to the bandits by the ground controller.

Fighter sweeps are usually laid on in conjunction with fighter-bomber attacks on targets well behind the enemy lines, in which case there will invariably be a screening force and close escort. Sweeps are also carried out even if no other operations are planned with the object of destroying MiGs and keeping up a constant pressure on the enemy.

The MiGs all operate from north of the Yalu River, which is the Manchurian border. They have found it impossible to use airfields in North Korea for the

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simple reason that they have not been able to prevent our fighter-bombers putting them all out of action. We are not, of course, allowed to cross the border. So what we do is to patrol south of the Yalu River at heights ranging from 45,000 feet downwards and wait for them to come across.

The MiGs have considerable advantages over us at this point. They are operating over their own territory and close to their own bases. They have an efficient radar warning system. We, on the other hand, are 200 miles from our bases and at this range can get very little help from our own radar. We have to keep always enough fuel in reserve to engage in combat, which means operating at full power with very heavy fuel consumption, and then to take us back home with enough in hand to cope with any unforeseen delays in landing.

The MiG 15, too, is in many ways a better fighter than the Sabre. It is faster, has better acceleration, climbs faster and has a higher ceiling. They can climb to their best height in perfect safety north of the Yalu and attack us at any time they choose from the quarter most favourable to them.

In spite of all this, we are still knocking them down at a ratio of better than eleven to one in our favour. The main reasons for this are, first, a higher standard of pilot ability and air discipline on our part and on their part poor control of their formation in the air and from the ground. Their flights seldom seem to be able to stay together once they engage us or we engage them, and on the whole they show a marked lack of team work and ability to do the right thing on the spur of the moment, which are both fundamentals of fighter flying. They almost always outnumber us, yet it is very seldom they will press home their attacks with any real determination.

Another factor, which we were all glad to see, is that the MiG pilots' gunnery is not all it might be. Their armament is good, consisting normally of one 37 mm. cannon and two 23 mm., against our six .50 calibre machine guns. We have also noticed that the MiG 15 appears to be unstable fore and aft. When the MiG pilot tightens up his turn a bit too enthusiastically, his aircraft is liable to snap, roll and spin, and there have been several cases observed of MiGs spinning into the ground without having been hit at all. There is no doubt though that the enemy pilots on the whole are benefiting from their encounter with us, and unless the performance of the Sabre is considerably improved or a new type introduced, the tide could turn in the enemy's favour.

A big feature of air operations in Korea, and a source of much comfort to pilots of single-engined aircraft operating deep inside enemy territory, is a most efficient air rescue service. When operations are going on helicopter and amphibian aircraft are at readiness to go to the help of anyone in trouble, and in addition flights of fighters are normally airborne in order to deal with any enemy interference with rescue operations. I have seen a helicopter waiting underneath a member of my flight descending by parachute more than 100 miles north of our base. In this case he came down in the sea and spent approximately thirty seconds in the water. The helicopter pilots are held in the highest esteem and have to their credit an impressive list of rescues made in face of enemy opposition.

As I said earlier, the role of the Sabre Wings in Korea is the maintenance of air superiority. They are outnumbered more than ten to one by the enemy and yet for more than a year they have achieved air superiority over North Korea, and one of the practical results of this is that not one bomb has been dropped on our front-line troops or anywhere else in South Korea during that time.

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THE AIR FORCES IN PARLIAMENT

SINCE the previous article in this series was written, but before it was published, much has happened in Parliament that concerns our Air Forces. A "Statement on Defence," which has now become an annual affair, was presented to Parliament by the Minister of Defence on 19th February this year in the form of a White Paper (Cmd. 8768, H.M.S.O., 9d.); this was followed by the Air Estimates for 1953-54 (H. of C. No. 82, H.M.S.O., 8s.) which were accompanied by a Memorandum by the Secretary of State for Air (Cmd. 8771, H.M.S.O., 4d.); and each of these was the subject of the customary debate in the House of Commons.

The Statement on Defence, 1953, contains proposals for spending £1,636,760,000 on defence during the financial year 1953-54; that is £123,000,000 more than the amount estimated for the previous year (1952-53), including the Supplementary Estimates, and represents a new peace-time peak of defence expenditure. As "Scrutator" pointed out in *The Sunday Times*, "Between 3d. and 4d. in every shilling raised in taxation is now spent on defence." Much of the increase (about one-third) is, of course, due to higher costs; but the remaining two-thirds of the increase represents a substantial advance on last year's effort and shows how seriously the Government view the international situation and how convinced they are of the need for adequate safeguards.

The defence effort clearly falls into two parts or phases which may be distinguished by the words "immediate" and "future" or, if you prefer it, "short term" and "long term." The first phase has to do with our present commitments overseas and with our part in resisting Russia's attempts to gain a decisive advantage in the cold war (a name which Sir Winston Churchill insists is not an official one), and to these ends we are devoting a considerable portion of our fighting forces. The second phase embraces all the preparations we must make, in collaboration with our Commonwealth partners and our allies, against the risk of armed aggression; and for this we are re-equipping all our armed forces, expanding the Royal Air Force, and building up reserves of men and materials. But it cannot be too often emphasized that our preparations for defence, our whole defence effort in fact, is being planned and executed in the hope that it may be an effective deterrent to a potential aggressor and will not have to be applied in actual war. By no means the least important results of the Government's "searching review" have been the careful balancing of defence and exports, particularly engineering exports, and a considerable reduction in the production of obsolescent equipment.

MANPOWER

The British nations would be the last to forget the vital importance of manpower, of the "man behind the gun" as it was so happily expressed many years ago, and the Government have clearly given this matter very careful thought. "The maintenance of effective and well-trained forces depends ultimately," says the White Paper, "on adequate numbers of Regulars serving on long-term engagements." While Regular recruiting to the Services increased as a whole in 1952, Regular recruiting to the R.A.F. on long-term engagements was disappointing. The short-term Regular engagement of three years' embodied service followed by a period of Reserve service has, however, produced very good

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results; but the value, to the Service, depends largely upon the numbers of those who decide to prolong their embodied service beyond the first three years.

The previous year's improvement in re-engagements and extensions of service in the R.A.F. was not fully maintained, even though the special financial inducements introduced in September, 1950, were continued. Many more extensions and re-engagements are needed to maintain efficiency and to provide the senior N.C.Os. and technicians, of whom there is a serious shortage. National Service will be continued on a two-year basis as at present, and the Government propose to ask Parliament for authority to extend the present scheme for five years after the end of 1953, when it would otherwise lapse.

Under present legislation, young ex-National Service reservists who were called-up after 1949 and have completed two years' embodied service and three and a half years' part-time service in the Reserve have no liability for recall to the Service at the beginning of an emergency; the Government propose, therefore, to ask Parliament for authority to make these trained and valuable young men liable, for a further period of five years, to recall for service in a military emergency, but they will probably not have to be called-up for training during this period of extended Reserve liability. The annual call-up of Class "Z" and Class "G" reservists will be discontinued and their Reserve liability will be limited to recall in a military emergency and will cease altogether when they reach forty-five years of age.

FOUR PHASES OF DEFENCE

The Times, in a particularly penetrating leading article on 20th February, 1953, commenting on the White Paper, pointed out that "the three Chiefs of Staff are nowadays compelled to forge an instrument which can play any of four possible and conflicting roles" in very different sets of circumstances. These circumstances *The Times* summarizes as follows:

(i) "There is the cold war, with its specially heavy burden for the Army in Germany and the Middle East and its active operations for all three Services in the Far Eastern theatre."

(ii) "There is the important task of keeping, and when necessary displaying, a large enough force of fighting men of all arms and trades to deter any possible aggressor from malicious experiments which could lead to general war."

(iii) "The third requirement must be with an eye to the first thirty days of full-scale modern war, should such a catastrophe be forced upon the world by the Communists; in this period both sides would fight with their most terrible weapons, vainly hoping to snatch quick victory in the teeth of hideous reprisals."

(iv) "Finally there is the sequel to such an overture, the long months and years that could follow D plus 30, when exhaustion had possibly set in and the tempo had to slacken for a breathing-space and a slower mode of fighting."

THE DEFENCE DEBATE

When the Statement on Defence was debated in the House of Commons on 5th March, 1953, the Prime Minister devoted most of his speech to detailed explanations of, and comments upon, the White Paper, in the course of which he said that ever since they took office the Government had been pursuing the twin but divergent objectives of financial solvency and military security. "Solvency," he said, "is valueless without security, and security is impossible to achieve without solvency."

Solvency requires the export of arms to other countries even at the expense of production for our own defence, but there are "solid compensating advantages even in the military sphere." Most of the countries to which we export

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arms are members of N.A.T.O. or of our own Commonwealth, so they are our allies; and there are other advantages. Owing to the rapidity of scientific progress today, when new and improved weapons are continually being evolved, it is vitally important for us to have "an adequate and flexible armaments industry capable above all of speedy expansion." By exporting arms to other countries we can build up an industrial war potential much greater than we could afford to do otherwise; and, if war comes, this extra productive capacity, fully tooled up and manned as it is, will give us "an important armament reserve of inestimable value." Thus the sale of arms abroad has three advantages: (i) it increases our war potential, (ii) it adds to our international balance of payments, and (iii) seven-eighths of it, which goes to the Commonwealth and Western Europe, adds to the military strength of the free world.

THE SECRETARY OF STATE'S MEMORANDUM

This Memorandum clearly shows that the policy now is to strengthen the front line of the Royal Air Force or, if we may so say, to "sharpen its teeth." The rate of expansion will not be so high as was previously intended, owing to the policy of abandoning obsolescent types and concentrating on the latest developments; but it will still be very marked. More operational aircraft, the Memorandum says, have already been brought into service in commands at home and overseas, and the number of flying hours has increased by one-third.

The largest single expansion has taken place in the 2nd Allied Tactical Air Force. Both day- and night-fighter forces in Fighter Command will continue to expand this year, which will also see the introduction into the R.A.F. of the first British-built swept-wing day fighters. The first type in operational service will be the Swift. In addition to the aircraft which the R.A.F. on the Continent are to receive from Canada and the U.S.A., "a most welcome offer of F.86 Sabres under the United States Mutual Security Programme provides for valuable re-equipment in Fighter Command during 1953." More squadrons of Canberra jet-bombers have already been formed in Bomber Command, and the expansion of the Canberra bomber force is to be greatly accelerated during 1953-54. The photographic reconnaissance squadrons will be re-equipped with Canberras and Coastal Command by new squadrons equipped with Shackletons and Neptunes.

R.A.F. squadrons of the 2nd A.T.A.F. on the Continent are now receiving Venoms to replace the Vampires, and all the day-fighter and ground-attack squadrons are to be equipped with the new aircraft this year.

THE AIR ESTIMATES

Introducing the Air Estimates in the House of Commons on 12th March, 1953, Mr. George Ward, the Under-Secretary of State for Air, said that the net sum estimated for 1953-54 was £498 million compared with £438 million in 1952-53, an increase of £60 million. In addition, the United States of America are to provide £50 million as "defence support aid" in 1953-54 compared with £30 million in 1952-53, an increase of £20 million. Our gross expenditure on air defence this year is estimated at £548 million compared with £468 million last year; so we expect to spend about £80 million more this year than last year.

He then went on to state the three main tasks of the Royal Air Force, which may be summarized as follows. The first is to provide, in conjunction with the Commonwealth and N.A.T.O. countries, a powerful deterrent to aggression; the second, which will come into play if the deterrent should fail, is to provide for the defence of the United Kingdom and for an effective contribution to

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Commonwealth defence and to the joint defence of N.A.T.O. as a whole; and the third is to secure and maintain our objectives in the cold war.

The Under-Secretary of State next proceeded to deal with the new equipment with which the Government aimed to build up an Air Force which would be pre-eminent in quality and effectiveness. Except for the Sabres, he said, the R.A.F. still had no swept-wing fighters, but the first squadrons of Swifts would be formed towards the end of the year, and Hunter squadrons would follow. Both types were ordered "off the drawing-board," and rightly, for they are the finest day-fighters in the world. A large order had also been placed for delta-winged Gloster Javelins, which would be the all-weather fighters of the future—for a time, at least.

Two new prototype bombers, the Avro Vulcan and the Handley Page Victor, are now undergoing trials. Their performance is so outstanding and their importance so great that orders have already been placed for both before their tests have been completed, as was done for the Vulcan, which will, it is hoped, come into service in 1954 as the foundation of the new long-range bomber force. It may be asked, why must there be three types of long-range bomber? The answer is that we cannot wait until we have decided which of the three is the best; we must have an adequate bomber force as soon as possible, and we know that all three are good. We depend on our bomber force, more than on any other single military factor, for safeguarding peace and security. The "V"-class bomber can carry many times the bomb-load of the Canberra and can find its target more accurately.

A transport version of the Valiant bomber is also contemplated, and a prototype has been ordered which, it is expected, will be of revolutionary importance because of its outstanding performance and economies of operation. A small number of jet-trainers, adapted from the Provost, are being ordered experimentally so that pupils can carry out the whole of their flying training on jet-aircraft.

Research and development are not being neglected. Bearing in mind that fighters must still be a very important element in our air defence system, attention is being given to the operational problems of flight well beyond the speed of sound; and at the same time, the development of guided missiles proceeds. Both air-to-air and surface-to-air guided weapons must be developed for defence; and the guided bomb, because of its very great accuracy, will, when it comes, greatly increase the effectiveness of our bomber forces. We can now, by various costly and ingenious devices, ensure that a bomber aircraft arrives accurately over its target; but once the bombs are released, they still fall free and uncontrolled through the air at the mercy of constantly shifting winds and air currents. There is obviously a very strong case for the guided bomb.

IN THE HOUSE OF LORDS

The House of Lords held a two days' debate on Defence in April, 1953, when they discussed the Statement on Defence, 1953, which had been debated in the House of Commons on 5th March. The Minister of Defence, Earl Alexander of Tunis, explained that the N.A.T.O. infrastructure in Europe, which is estimated to cost £350 million (Britain's share being about £50 million), consists for the most part of airfields, and the rest is made up of war headquarters and of communications which are mainly for the airfields and for the control and reporting system. Over 140 airfields are planned and most of them will be completed this year. The airfields are to be connected by a jet-fuel pipeline and pumping system —an entirely new idea—because, owing to the high fuel consumption of jet air-

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craft, it would be almost impossible to keep them adequately supplied with fuel in active operations by the use of trucks alone.

Speaking of research and development, he pointed out how recent were some of the scientific developments with which we were all now so familiar. "For instance," he said, "fifteen years ago radar was still a new idea whose vast potentialities were not realized. The jet-engine is only twelve years old and the first atomic bomb was exploded only eight years ago"—three inventions which have revolutionized the technique of warfare. And the revolution is still going on—to supersonic flight and guided missiles.

Guided weapons fall into two main groups: (i) the air-to-air weapons, which are expected to increase the destructive power of our fighter forces fourfold, and (ii) the surface-to-air weapons, which are for defence against high-speed, high-altitude enemy aircraft. Here the Minister of Defence made an announcement of the greatest importance to the Royal Air Force (a statement that was simultaneously made in the House of Commons by the Parliamentary Secretary to the Ministry of Defence). He said: *"After full consideration of all the factors involved, it has been decided that the manning and operation of these guided weapons shall become the responsibility of the Royal Air Force. In my opinion, this is the right decision because surface-to-air guided missiles are complementary to fighter aircraft and operate in the same air space, and must therefore be under the same ground control."*

LORD TRENCHARD

It was not long after the Minister of Defence had sat down—thirty-four minutes, in fact—when Lord Trenchard rose to speak. "I look upon air power," he said, "as the corner-stone of defence"; and he addressed himself primarily to those "who do not realize the power of the air today." The Air Service was formed in 1918 *as one Service*, and now we are trying to run it as three Services. Air power cannot be divided. The Tactical Air Force cannot operate without air superiority; Coastal Command and Naval Aviation share some of their tasks; and the Strategic Air Force and the Bomber Force are spoken of as different formations. Thus there is division of responsibility and of command where there is one task to be done. If all our operational aviation were run as one Service, as was originally planned, not only would greater efficiency result, but there would also be considerable saving in staffs, in equipment, in training and in recruiting, which might amount to as much as £100 million in a year. There are no boundaries in the air like those which clearly separate operations on land from operations on or under the sea.

Lord Dowding had previously explained why carrier-based aircraft were inferior to land-based aircraft, and so they always would be. It was said that carriers were the only means of bringing aircraft to operate in certain "gaps" in the Atlantic and Pacific Oceans which shore-based aircraft could not effectively cover; "but where," asked Lord Trenchard, "are the hostile forces coming from to operate in those gaps?" Distance dominated air power at the end of the past war; but now, thanks to the enormous increase in the effective range of aircraft, air power dominates distance.

Lord Trenchard then suggested that some of the money saved by the cuts in defence expenditure might well be applied to speeding up the production of the three new long-range medium bombers, the Vulcan, Valiant and Victor. These, he insisted, would be invaluable during the next few years, which might be a crucial period; and if we look too far ahead into the distant future and neglect the immediate future, there might be no distant future for us at all. Long-range bombers carrying atom bombs would constitute a Central Com-

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monwealth Strategic Reserve, which we do not possess at present. How important that might be for us was well illustrated by General Gamelin's astonishing admission to Mr. Churchill in France in 1940, when he confessed that he had no "mass of manœuvre."

Quoting the Prime Minister's statement in Boston in 1947 that "air mastery is today the supreme expression of military power," Lord Trenchard concluded his speech by expressing his profound astonishment and concern that there was "not one British airman as a Commander-in-Chief" in the N.A.T.O. forces in Europe. "After forty years of air, can it be said," asked Lord Trenchard, "that there is nobody who can now come forward from the Air Force to be a Commander-in-Chief?" A newly appointed Commander-in-Chief is almost omnipotent for his first few years and can get what he wants. Here would be a fine opportunity for an air-trained Commander-in-Chief to establish the importance of the air arm and obtain adequate air forces for the defence of the West. What we need, and need urgently, both now and in the future, is a feeling of pride and confidence in our Air Forces at least as great as the traditional pride and confidence we have for so long felt in our Navy.

LORD TEDDER

In order to remove any misapprehension, Lord Tedder insisted that whereas naval warfare, land warfare and air warfare were *distinct* forms of warfare, each being conditioned by its own sphere of operations or "element," operations on land, on the sea or in the air must be regarded not as *separate* operations but as "parts of one closely knit unity." He complained that the two senior Services did not even yet "properly recognize air forces as anything except convenient adjuncts to their own operations on land or sea. Can we really be assured," he asked, "that our defence forces are being organized to meet the conditions and tempo—the tempo particularly—not of the wars of the past but of a possible future war?"

It appears to have been decided—tentatively, we hope—to place the air forces in Europe under the command of the commander of the land forces. If so, that is a retrograde step. Lord Montgomery said some time ago: "The first and great principle of war is that you must first win your air battle." And he added later: "The Air Force side of the fighting machine must be centralized and kept under Air Force command." That is surely the only way. The air battle cannot be won by three air forces operating separately under navy, army and air commands. While lip-service is being paid to air power as the dominant factor in defence, not enough is being done to ensure that the dominant factor is given its proper place in the over-all scheme of defence.

For nearly 100 years before 1914, wars were localized and world peace was kept by a very effective deterrent, the British Fleet in Being; and there can be no doubt that since 1945 the deterrent has been the American Strategic Bomber Force with its atom bombs. Now we are in a position, or we shall shortly be in a position, to take our proper share of this burden, and it is right that we should do so. "The new bombers with which the Air Force could be equipped are, in design and performance, well ahead of anything . . . brilliant examples of a new generation of aircraft and most unlikely to suffer early obsolescence." This is the right moment for modernizing the Royal Air Force and making it once again a power in the world, a power for peace, the modern Fleet in Being. But we shall not be in a position to exercise this power for peace so long as our airmen are kept out of positions of high authority, and so long as we hesitate to provide and maintain air forces adequate to the maintenance of peace.

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LEADERSHIP—ITS EFFECT ON R.A.F. MORALE

By Squadron Leader S. H. Martin, R.A.F.

INTRODUCTION

A FIGHTING force will not fight well unless the morale of each man in the force is built up and maintained at a high level.

High morale is a quiet, confident state of mind. It will be developed in a man who has full faith in his equipment, weapons, training and, most of all, in his leaders. The quality of the leadership will determine the level to which the morale of a fighting force will be raised. Inferior weapons, inadequate training, inefficient equipment will lower morale. Poor leadership will destroy it.

The responsibilities of leadership rise with the level of command. So do the opportunities to improve morale over a wider field. Basic principles, however, govern leadership's effect on morale throughout the whole range of command. Throughout this range each leader must first appreciate the importance of a high morale in those under his command. Secondly, he must have the ability to develop and maintain it.

If these requirements are to be met, each leader, whether he be a group commander or a junior N.C.O., will need to study carefully all those factors over which he has control which affect the morale of his men.

The paragraphs which follow will discuss a few of our problems and suggest some of the qualities we need in our leadership today if the morale of the Royal Air Force is to be equal to tomorrow's demands.

THE DEMANDS OF TOMORROW

In modern war an enemy is likely to strike hard and sure in the opening days of the conflict. We have to face the prospect of mass attacks on the European continent by armies and tactical air forces. We know that Russia is building a long-range bomber force and that she possesses many submarines. The threat, therefore, is large, it is tangible, and if we are to play our full part in countering it not only will we need the maximum strength possible in all arms of the Service, but we must build that strength now. Time will not be our ally.

Whether we fully appreciate the potentialities of modern war or the threat that we face will not be argued here. It is enough for us to know that material weakness must be counter-balanced by moral strength. We shall need every ounce of moral courage that we can muster if we are to survive.

If expansion in the early stages of war is to be rapid and efficient the quality of our reserves must also be high. If the morale of our force be high it will quickly be communicated to those who join our Service, for a high morale is an infectious thing.

The demand therefore is urgent. We must have high quality leadership and we must have it *now*. The quality achieved today will determine tomorrow's performance in battle.

TODAY'S LEADERSHIP—AND SOME OF ITS PROBLEMS

What then are the qualities required of our leaders?

Our officers must be prepared to accept responsibility not for personal gain or advancement but because they see clearly the need for leadership. We all know the "happy" station, squadron or staff. It is one where its commander puts

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the Service before himself, and the welfare of his men before his own comfort. It is one where discipline is firmly, but not harshly, applied. It is one where a man gets thanks for a job well done and encouragement to further effort. It is one where each man feels that he is an important part of an efficient machine.

All commanders should be capable of doing what they order their subordinates to do. They should know that human nature is such that suggestion is often more potent than force and example more valuable than direction.

Orders, once given, should be backed by the full authority of the commander who should support whole-heartedly those carrying out his orders.

In many men these qualities of leadership are a natural part of their make-up. We must go on looking for men endowed with such qualities. If we find that we are unable to attract sufficient men of the standard we require we should not lower our standards, but rather we should find the reasons why an honourable career in a Service of high repute was no longer so attractive to the best of the youth of this country. The need for better officer material will always be with us. Among the basic difficulties which threaten today's standards are lowered status of officers generally, and of junior officers in particular, poor publicity and our inability to compete on equal terms with industry for the types of men most likely to become good officers. We cannot expect poor material to develop perfection overnight.

At the present time the Service is perhaps weakest in the quality of its junior non-commissioned officers. This is largely due to the lower standards which of necessity were accepted during the war. As junior N.C.Os. are in constant contact with airmen and thus influence an airman's day-to-day outlook, it is vitally important that they should be carefully selected and made to feel their responsibilities. The "new trade structure" should do much to permit a careful selection of N.C.Os. for the command "ladder."

The effect of good leadership may be felt beyond the immediate confines of the Service. It can affect recruiting. It can affect the decision of a young man when he comes to consider whether he should remain in the Service or return to civilian life at the end of his National Service. The present shortage of recruits to skilled trades in the Service is well known. If a man has experienced understanding and encouragement from officers and N.C.Os. on his unit or station, he is much more likely to form a favourable impression of the Service and to communicate this to his friends and relatives outside the Service. This, multiplied, might have a profound effect on recruiting. This is not generally understood by all officers and points to a deficiency in officer training.

A leader should be enthusiastic about his command. A squadron commander should always show that, in his estimation, his squadron is the best in the group —the best in the Royal Air Force. He should be jealous of its reputation, proud of its past history and determine to ensure the retention of its good name. The "squadron spirit" shows the level of the morale in the squadron and can be best engendered by efficient and understanding leadership. Today this is much easier in its application to the pilots and air crews in a squadron than it is to ground personnel. The importance of a high morale in the ground crews cannot be too highly emphasized. A low state of morale on the ground must inevitably lead to carelessness, thence to inefficiency, and from inefficiency to unserviceability and fewer flying hours, perhaps even accidents, until air crew morale is affected. The "squadron spirit" does not exist today to the extent that it once did, mainly because all too few airmen are held on squadron strengths. It is imperative that G.D. officers receive practical experience in leadership if they are to become successful commanders of the future. By the present system valuable

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training is largely denied them. The morale of an airman working on the squadron side by side with the men who fly the aircraft, intimately connected with the affairs of the squadron and able to feel that he is identified with an important and integral part of an operational machine is certain to be higher than that of his contemporaries undertaking duties in conditions somewhat similar to those of a factory production line.

Morale flags when there is little work to be done. More flying will not only improve the quality of the crews in the air, but will keep the ground organization at a more efficient pitch. Most squadron commanders today are alive to the necessity for getting every flying hour possible from their aircraft; and in certain commands the experiment of permitting squadrons once again to carry out their own second-line servicing appears to be yielding a bonus not only in more flying hours and a full day's work for the ground crews, but also in higher morale among the air crews and airmen.

In the Royal Air Force today there is often too little personal contact between command and group staffs and units. Staffs should always be aware of the quality and ability of the men in the squadrons on whom they must rely for success. Frequent visits to squadrons and other units should be made. This is particularly true in respect of Air Staff officers who should fly with the squadrons if possible and in any event should at least be in current flying practice on the types of aircraft in use in the command in which they serve. It is essential that squadron members should feel that the men who control their destinies are as much aware of their day-to-day problems as they are themselves. Not only does this mean that the individual squadron commanders and their crews will begin to feel that no great gulf exists between commands, groups and units, but controlling formations will gain a more intimate insight into the standards to be expected from units under operational conditions.

CONCLUSION

To summarize, therefore, it may be said that many factors affecting morale in the Royal Air Force today are very much the same as those experienced in the past. Good leadership is still vitally necessary to a high morale. High morale must be maintained in peace time if we are to become effective either as a deterrent force or as a force capable of rapid and efficient expansion in war. The qualities of leadership most likely to improve morale are simple human ones, improved by study and by experience. We need men who have fertile minds wherein the seeds of knowledge may grow. We need better human material and we need to improve the material we have if we are to raise the standard of leadership and hence the level of our morale.

The solution of some of the problems outlined may be beyond the capacity of our leaders. This does not mean that the problems should be ignored or forgotten. If they affect the morale of our force we must say so and go on saying so at every opportunity. As a country we are financially poor and because of this policies are thrust upon us which adversely affect our morale. We must be careful not to accept such policies as a permanent feature in peace time.

The Royal Air Force became an efficient fighting machine during the war years; in the event of another conflict the Service will again be called upon to take a major role in the defence of our country and in the destruction of our enemies. The spirit of our Service must be high and its leaders strong and resolute, and the whole force must be supremely confident in its own ability. To bring this about is the task of every leader in the Service today, from Air Marshal to Corporal.

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TRADITION IN THE ROYAL AIR FORCE

By Squadron Leader D. I. Slade

THE MEANING OF TRADITION

MAN and the society in which he lives, or the organization of which he is part, is often likened to a tree. Its branches reach out towards the future; its size and leafiness are visible signs of health and strength; but hidden in the soil are the roots by which the tree draws that health and strength, and which hold it firm against the storms of life.

A cleric would call these roots, faith; an anthropologist, heredity; a philosopher, history. Applying the metaphor to the fighting services, they are roots of tradition, combining a little of faith, heredity and history.

Traditional roots grow deep into the soil, which is the past. The older the tree the longer the roots; the richer the soil, the more numerous they are; combined they support an indestructible tree.

PECULIAR PROBLEMS OF THE R.A.F.

The Royal Air Force tree is large and verdant; its growth in less than four decades is phenomenal, much too rapid for it to be identified as a tough, durable oak; yet it need not be a stately but shallow-rooted pine, blown over by the first gale if unshielded by other trees growing in close proximity.

The richness of the past compensates for lack of depth of root. Legends grow more rapidly around individuals than around units or campaigns in the air, and this is natural, for air fighting, despite its modernity, is largely a throw-back to man-to-man combat of the pre-powder and shot period. The R.A.F. is not lacking in its heroes.

A flying service has a particularly difficult task in fostering tradition. It must always be looking forward, keeping abreast of scientific and technological developments, which have a way of sweeping everything along with it. For example, the first "dual" instruction was achieved by the instructor prodding his pupil and pointing with a walking stick (it might also have assisted on occasions to uphold the legend that any landing you can walk away from is a good landing). The Gosport tube soon ousted the walking stick as the agent of intercommunication, but the stick was retained as part of an officer's dress until the early thirties. However, progress sweeps inexorably on and the walking stick, being rather the symbol of staid, elderly gentlemen, not at all in keeping with flying at 200 miles per hour, had to go. All that remains to commemorate it is the cane now reintroduced for station commanders, wing commanders flying, administration and technical.

Today another tradition is dying. The "technician" has been introduced; no longer are all N.C.Os. competent disciplinarians as well as tradesmen; sad, but inevitable in these days of highly complex technical equipment.

GROWTH OF TRADITION RETARDED

Making due allowances, R.A.F. promotion of tradition has been poor. Generally speaking the matter has been given little attention; when it has, and conscious effort is apparent, the result has been excrutiating.

Consider the wholesale change of new squadron numbers for old which took place shortly after the Second World War. Squadrons whose aircraft and crews had been written off over and over again, who had operated from dozens of

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aerodromes yet retained their entity despite the ravages of the enemy, lost their identity utterly on the orders of higher command. There were no ceremonies, one was either told or read in Air Ministry Orders that such and such squadron no longer existed. It would be wrong to condemn this policy unreservedly. The intention to maintain continuity of the older squadrons was good; the execution was deplorable. As, for example, the aerial survey squadron formed in 1947 and given the mantle of No. 58 Squadron, whose crest is an owl and whose motto, "We fly by night."

INSTABILITY IN POST-WAR PLANNING

The R.A.F. flying brevet has always marked the wearer as a fighting flyer, one who has been or is a potential operational aircrew member. Hundreds of aircrew were deprived of their brevets during the Second World War because they did not become "productive" often through no fault of their own. But in September last a member of the Women's Royal Air Force Volunteer Reserve was awarded her "Wings." The lady is extremely well qualified in all matters aeronautic, but it is never intended she shall fly as a combatant.

The observers' winged "O" was executed without ceremony in 1942. The writer's recollection is that the intention was to give official recognition to the equal importance of all aircrew and, since changes were in the air, it was considered "navigator" was more functional than "observer"; how prosaic!

These have been severe blows to one of the brightest and most revered of R.A.F. traditions. What compensatory advantages are claimed?

It is not proposed to compile a dolorous catalogue of the R.A.F.'s post-war philanderings with established customs and dress, but it is relevant to write a valediction on the field service cap.

The forage cap, or glengarry, was adopted and modified by the Royal Flying Corps. The flaps could be pulled down to do service in an emergency as a flying helmet. It disappeared for nearly twenty years, but when the need for a cap which could easily be stowed in an aeroplane was officially recognized in 1936, it reappeared in air force blue. It was extremely popular because it was distinctive and comfortable. Above all it was very typical for it gave the air of efficiency and smartness devoid of regimented drill. The Army was sufficiently envious to introduce it as a walking-out cap during the Second World War. How ironic that the R.A.F. should now be abandoning it in favour of the characterless Army beret. Admittedly the field service cap has gained a reputation as a "sloppy bit of cloth," but that is the fault of bad tailoring with unsuitable material and Chelsea haircuts, upon which military head-dress rightly refuses to perch.

ASSURE OUR FUTURE BY HONOURING THE PAST

Can we generously dismiss these complaints as the instability of a very young service? Possibly, yes. Unfortunately a service never grows older than its members if its institutions are regularly killed off. When a tradition survives a generation it is held in real veneration; after several generations it becomes impregnably established.

The R.A.F. has not the advantage of its brothers in growing up in an era when progress was slow and change abhorrent. Tradition looked after itself in an age when it was virtuous to honour the past. But today we live in an epoch of increasing materialism; conscious effort is essential if abstract things are to thrive.

We see storms on the horizon and mistakenly increase the size of our tree in our efforts to strengthen it. We must realize this only increases its vulnerability unless the roots are carefully tended and their healthy growth assured.

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ARRIVAL OF HER MAJESTY THE QUEEN [Air Ministry Photo. Crown Copyright

On the left (in morning dress) is the Secretary of State for Air, The Lord De L'Isle and Dudley, V.C., presenting senior officers of the Royal Air Force. Third from the right, facing, the Duke of Edinburgh

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THE ROYAL REVIEW

By E. Colston Shepherd

THE Coronation Review of the Royal Air Force by Her Majesty the Queen at Odiham on 15th July was on a bigger scale than any formal occasion previously organized by the Service. In every respect it was a marked success. Its parade and march past, which occupied the morning, were worthy of the highest military traditions. Its fly-past by 640 aircraft, of an enormously wide range of speeds, was accomplished with all the precision and dignity of a parade and yet with a mounting air of excitement. Its exhibition on the ground of all types of aircraft and many pieces of equipment gave Her Majesty and the Duke of Edinburgh an opportunity to see both the apparatus and the men devoted to the exercise of air power and so helped to make the formal picture intimate.

At last, too, a fine if rough day had come to free carefully-laid plans from the bugbear of last-minute modification. Twice in this Coronation year the R.A.F. has had to contend with bad weather in offering a salutation to the Queen. Now, at last, the clouds rode high, the spluttering storms gave a brief morning performance and died away, big patches of blue sky and bright sunshine turned the day into a gay patchwork, and only a high and gusty wind, causing well-creased trousers to flap and the parachute-training balloon to plunge and rear, persisted to test the formation flying of the biggest parade ever flown past a saluting base.

The day's procedings resolved themselves into a triumph of planning and a demonstration of perfect team-work. Every officer and airman knew what had to be done and did it with a measure of skill which spoke of skill, application and devoted preparation. The effect was to convey an impression of confidence and accomplishment and to present a picture of orderly and unhurried competence from the ceremonial drill of the opening, through the hour-long tour of inspection past the gleaming lines of 318 aircraft on the ground, to the final procession of more than forty formations. This last made a most impressive climax. Not one of the formations was ragged. Hardly any was unpunctual by as much as two seconds, although the interval between formations was only thirty seconds and, on the run-in, there was a funnel only thirty-eight miles long in which to adjust intervals.

With just that kind of precision the whole of the day's programme was performed. When the royal party arrived at the dais at noon, and were received by Lord De Lisle and Dudley, Secretary of State for Air, and Air Chief Marshal Sir William Dickson, Chief of Air Staff, a parade of 1,156 officers, airmen and airwomen, were drawn up in review order, the Queen's Colour with its escort squadron in front and three lines of detachments from all the commands, from the W.R.A.F., the R.A.F. Regiment and the apprentices' and boys' establishment behind and behind them again the massed bands, including that of the W.R.A.F.

They had marched on to the parade ground in the last little splutter of rain of the day, their uniforms almost the same colour as the broad, grey

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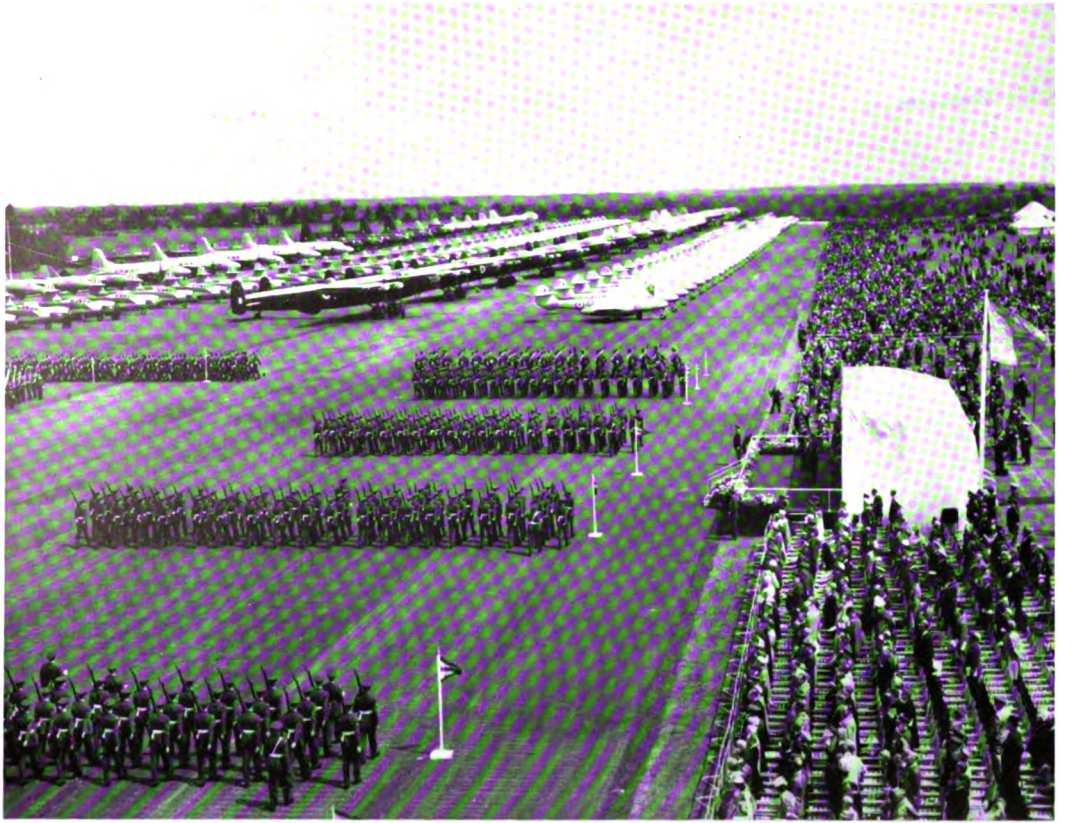

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CORONATION REVIEW OF THE ROYAL AIR FORCE: THE MARCH PAST

Twelve squadrons representing all Royal Air Force Commands at home, the R.A.F. Regiment, the Women's Royal Air Force, Apprentices and Boy Entrants, in the March Past, after being inspected on parade by Her Majesty. The Officer Commanding the Ceremonial Parade was Group Captain R. J. A. Ford, C.B.E.

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THE STATIC PARADE

A part of the Static Parade of aircraft, and those who man them, showing types of aircraft of the Royal Air Force; among these are Vampires, Venoms, Sabres and Washington aircraft. Other types can be seen in the illustration of the March Past. The Static Parade was commanded by Air Commodore G. D. Stephenson, C.B.E., A.D.C.

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runway so that belts and rifle slings looked a dazzling white and the glint of cap badges, bayonets and swords was abnormally bright. There, as still and fine as any parade of this year, they stood while Her Majesty, attended by the parade commander (Group Captain R. J. A. Ford) with sword at the carry, and the Duke of Edinburgh, attended by Air Marshal Sir Victor Groom, who was responsible for this parade, and Air Commodore Sir Edward Fielden, passed along the ranks to make their inspection.

When they had returned to the saluting base, the Queen's Colour was paraded first in slow time and then in quick time by the Colour party, attended by the escorting squadron. The lowering of the Colour as it passed Her Majesty was acknowledged with a salute by the Duke of Edinburgh who, in the uniform of Marshal of the R.A.F., stood a little behind her. Now, in turn, each detachment marched past the saluting base, a credit to their drill instructors and themselves, each receiving a return salute from the Duke of Edinburgh. The W.R.A.F. contingent was as smart and assured as the detachments of airmen and, although it suffered the only small mishap of the parade, this passed unnoticed until the march past was over and a solitary smart new cap of W.R.A.F. pattern bowled along in the high wind over the now empty stretch of runway.

As the parade ended, four Venom aircraft began writing in smoke in the sky before the royal dais, the letters ER. A cloud obscured most of the letter E, but Her Majesty, watching the swiftly formed trails of smoke, smiled at the compliment. Then the royal party was driven to the Mess for lunch with the Air Council. Among the party were the Duke and Duchess of Gloucester (the Duchess in W.R.A.F. uniform), the Duchess of Kent and Princess Alexandra. At luncheon, in addition to members of the Air Council, the following Marshals of the R.A.F. were also present: Lord Trenchard, Sir John Salmond, Lord Tedder, Lord Douglas, Sir Arthur Harris and Sir John Slessor.

For the benefit of the general public, of whom some 25,000 were present, the luncheon interval was occupied by visits from representative aircraft engaged on normal training or transport duties. Most of the aircraft spoke to the Odiham control and the voices of their pilots were broadcast by loud-speakers. There were a Tiger Moth and a Harvard, doing cross-country training flights; a Meteor and a Canberra engaged on photographic work; a Hastings just back from a weather flight over the Atlantic; a second Hastings just back from the North Pole, and another on its way with casualties from Korea to Lyneham; a Canberra which had been to Malta and back in the course of the morning; a Spitfire used on target work for A.A. practice; and an A.O.P. Auster flown by a Territorial Army pilot.

Throughout the day the static aircraft, drawn up in four long lines to right and left of the parade ground, had been ready for Her Majesty's inspection. Aluminium was polished like silver, paint was fresh and bright, propellers were dressed—the two-bladers vertical, the three-bladers in the form of a "Y," and the four-bladers to represent a cross. They were attended after lunch by air-crew and ground-crew parties, stationed in inspection order before each aircraft. Her Majesty and the Duke of Edinburgh made their long inspection journey in an open car in which they drove slowly along the front of each line, covering a distance of about four miles before this part of the review ended.

The Queen passed first along a rank of thirty-three Meteors and stopped at the last two, descended from her car and talked to the R.A.A.F. pilots of these aircraft, passing on to the twelve Sabres of the R.C.A.F. which stood next, and holding an interested conversation with Wing Commander J. D. Lindsay and

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other pilots. She drove along the second rank of Hastings, Lancaster and Lincoln aircraft to the third row consisting of forty-one Meteors. Here again Her Majesty alighted with the Duke and spoke to Wing Commander P. R. W. Wickham and Squadron Leader R. H. Chapman. In the fourth rank she passed Neptunes, Varsitys, Valettas, Canberras and then a group of 92 training aircraft—Chipmunks, Harvards, Prentices, Provosts, Balliols and Austers—as she crossed over to the western half of the static display.

First in the rear rank of this wing was a solitary Bristol Freighter of the R.N.Z.A.F., which the Queen descended to look at while the Duke talked freely with some of the trainer pilots. They had already paid a call on the Canberras and put questions to Wing Commander E. Cassidy and Captain M. Evance of the U.S.A.F., who was serving in a Canberra squadron under an exchange arrangement. They had also stopped at the Valettas and found Major D. S. Eden, of the S.A.A.F., and Flight Lieutenant Oliver, of the R.N.Z.A.F., among their pilots. They drove on past Oxfords and Ansons, to halt at the Vampire trainers, where they talked with officers and Cranwell cadets.

The car now swung away farther to the rear, past the balloon, armament, engines, police and police dog exhibits, to a medical and dental surgery, a R.O.C. post, a Sycamore helicopter and a whole range of vehicles. Her Majesty stepped out of her car to hear about equipment from Wing Commander Coombes, about medical arrangements from Squadron Leader Sutton, Squadron Officer Chapman and Flight Lieutenant Walker, about the Royal Observer Corps from Observer Commander Irving, and about the dogs from Flight Lieutenant Kennedy. She spoke also to Squadron Leader J. A. West about cadet gliding, to Squadron Leader D. Dattner about mountain rescue work, and to Squadron Leader D. A. Bliss about the R.A.F. Regiment. The helicopter pilot, Flight Lieutenant Meyrick, was also honoured with a call.

From the trucks, trailers, radar convoy and fire tender, Her Majesty drove along a line of twenty-nine Vampires and then came forward to the next rank, made up of Washingtons, Shackletons and Hastings, in the middle of which she paused to talk to Wing Commander E. W. Deacon and Squadron Leader T. W. Horton, of Coastal Command, and to Squadron Leader J. Tipton and Flight Lieutenant Bailey of 90 (Signals) Group. Finally, the party came to the front and last row—Meteors, Sabres and Venoms of the 2nd Allied Tactical Air Force and Vampires of Fighter Command. Three officers from Germany, Squadron Leader R. H. D. Weighill, Flight Lieutenant M. Smart and Flight Lieutenant D. A. Winterford, were presented to Her Majesty.

All the presentations in the course of this inspection were made by Air Commodore G. D. Stephenson, who was in charge of the static display. The royal party was attended throughout their tour by the Secretary of State, the Chief of Air Staff and Air Marshal Sir Dermot Boyle, A.O.C.-in-C. Fighter Command. While the inspection was in progress, two Venoms wrote another ER in smoke among the clouds, contriving to make the "E" appropriately slim and the "R" spendidly fat and robust. The inspection was finished with exactly five minutes to spare. When the Queen and the Duke had regained the dais there was only a brief pause before two black blobs could be seen in the air to the north-east. The onlookers had expected a solitary Sycamore helicopter to open the fly-past and the riddle could not be read until it came almost abreast and the second blob proved to be a R.A.F. ensign flying splendidly on a weighted cable below the Sycamore.

From the moment when Flight Lieutenant D. C. L. Kearns led the way at a

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A DIVERSION DURING THE INSPECTION

As the inspection drew to a close, four Venom aircraft wrote in smoke trails in large letters "E.R." Her Majesty is here seen smiling at the unexpected diversion. To the right of Her Majesty is Air Marshal Sir Dermot A. Boyle, K.B.E., C.B., A.F.C. On the extreme right is Air Commodore G. D. Stephenson, C.B.E., A.D.C., and in the foreground on the left, the Chief of the Air Staff, Air Chief Marshal Sir William F. Dickson, G.C.B., K.B.E., D.S.O., A.F.C.

speed of 86 m.p.h., a formation passed the saluting base every half-minute at heights between 600 feet and 1,200 feet, and at speeds rising to the 460 m.p.h. of the Swifts as the huge parade of 640 aircraft closed up like a gigantic concertina.

There followed six new aircraft flown by civilian test pilots, again at 30-second intervals—the Victor, the Valiant, the Vulcan, the Javelin, the Hunter and the Swift F.4, the last passing the saluting base at 667 m.p.h.

This finish to the day was as admirably done as the drill with which the review opened. A crowd of 40,000 (including 25,000 of the general public) had watched the proceedings with great interest. Some 8,500 vehicles had been efficiently handled and parked. Forty marquees set around the airfield by N.A.A.F.I. had dispensed refreshments to Service and civilian visitors.

On her return to London, Her Majesty sent to the R.A.F. a message of appreciation and congratulation.

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ROYAL AIR FORCE CURRENT EVENTS

New Air Ministry Film for R.A.F. Instructors

Considerable interest has been aroused by a new Air Ministry film "Instructional Technique," designed for use as an aid to training instructors in the Royal Air Force. The film is in two parts—"The Classroom Lesson" (twenty minutes) and "The Practical Lesson" (seventeen minutes)—and is the first of its kind to deal with the teaching of a practical skill. Although produced against a R.A.F. background, it illustrates principles of teaching which have general application.

Much of the filming was done at R.A.F. stations. The classroom and workshop scenes were shot at R.A.F., Cosford, the flying sequences at R.A.F., Odiham, and R.A.F., Ternhill, and the incidental shots at R.A.F., Uxbridge. A hundred serving officers and airmen as well as some professional actors took part.

The film, which has some amusing incidents, makes a psychological appeal since it does not present the perfect instructor or the perfect lesson. Each part of the film portrays three typical instructors each having characteristic faults and qualities, which are thrown into heightened relief by means of inter-cutting between scene and scene. It is expected that discussion will arise after the film has been shown, and indeed it is in this way that the full value of the film will probably be realized. To assist discussion significant shots of the film have been put together as a film strip. Each frame will serve to remind the audience of a fault or a virtue of one of the instructors.

The "Dam Busters'" Anniversary

Ten years ago, on 16th May, 1943, the Royal Air Force successfully carried out one of the most spectacular operations of the war—the breaching of the Mohne and Eder dams in western Germany.

On the anniversary representatives of Bomber Command and No. 617 Squadron, the unit which made the attack, were the guests of the Headmaster of Christ's Hospital, Horsham, Mr. H. L. O. Flecker, C.B.E., M.A., at the school's Royal Air Force Day.

Christ's Hospital has a close association with the Service through the R.A.F. Foundationers Trust, set up in 1952 with the £10,000 awarded to Dr. B. N. Wallis, C.B.E., F.R.S., in recognition of his invention of the weapon used by No. 617 Squadron against the dams, and donated by him to the schools. A further £10,000 was given by the R.A.F. Benevolent Fund. The Trust provides studentships at Christ's Hospital for the education of children of Air Force officers and airmen. There are already eight boys and girls in the school who are supported by it.

R.A.F. guests included Air Chief Marshal Sir Hugh P. Lloyd, K.C.B., K.B.E., M.C., D.F.C., former Air Officer Commanding-in-Chief, Bomber Command, Group Captain J. B. Tait, D.S.O., D.F.C., Officer Commanding No. 617 Squadron in 1944 and leader of the attack which sank the *Tirpitz*, who now commands the R.A.F. bomber station at Coningsby, Lincolnshire, and Squadron Leader D. Roberts, D.F.C., A.F.C., the present commander of No. 617 Squadron. Dr. Wallis was also present.

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Airman Helps to Build Church in Middle East

When the present Roman Catholic Padre, the Rev. H. F. Power, first went to Ismailia services were held in a temporary hut which was too small for the purpose as well as being unattractive in appearance.

The Padre felt that if he could build an extension to the hut a suitable church could be provided, and a year ago, when Aircraftman R. T. Byrne, a National Service man who before his call-up had worked as a carpenter on the erection of the Ideal Home Exhibition, holiday camps and similar projects, arrived at the station, he found in him just the man to help him in the work.

Aircraftman Byrne gave most of his spare time to the task. The extensions, which include a porch and a Lady Chapel, are finished, new windows have been put in, the church has been decorated inside and out, and the Padre and the airman laid the cement for the church floor. Some further interior decorations and the erection of a steeple and a lighted cross remain to be done. A number of officers and airmen at Ismailia have given money with which to buy pews to replace the present chairs and when the pews are ready the Padre proposes to have a small brass plate affixed to each bearing the name of the donor.

"Imshi" Mason Memorial Trophy

The "Imshi" Mason Memorial Trophy, competed for annually by squadrons of Middle East Air Force Command, and awarded for efficiency in weapons training, has been won for the second successive year by No. 6 Squadron now stationed in Iraq.

No. 6 Squadron, which, since the trophy was first put up for competition in 1949, has never held less than second place, gained a percentage of 79.6 in winning the award for 1952.

No. 6 Squadron, formed at Farnborough in January, 1914, saw much action during the First World War, and in 1915 Lieutenant Walker, a squadron pilot, was awarded the first Victoria Cross for air combat. In 1919 the squadron went to Basra, Iraq, remaining there until 1926 when it moved to Ismailia, in the Suez Canal Zone. Later it went to Palestine and it played a major part in maintaining order during the Palestine troubles of 1936-39.

During the Second World War the Squadron operated in a ground-attack role, achieving considerable success with its Hurricanes. After the war it was based first at Khartoum, and afterwards at Deversoir, before going to Iraq.

Iraq Command Receives its Badge

At a recent ceremony at Air Headquarters, Iraq, at R.A.F. Station, Habbaniya, the Air Officer Commanding, Iraq, Air Vice-Marshal J. G. Hawtrey, C.B.E., was presented with the new Command Badge by the Commander-in-Chief, Middle East Air Force, Air Chief Marshal Sir Arthur Sanders, K.C.B., K.B.E.

The badge, signed by Her Majesty The Queen, was presented outside the Air Headquarters building at a parade of Headquarters officers and airmen, which was also attended by all members of the civilian staff.

The badge carries the traditional five-legged, winged Assyrian bull, and bears the motto *Pennae Extent* (Spread your wings).

Addressing the parade, Air Chief Marshal Sanders recalled how A.H.Q., Iraq, had developed following the decision of the British Government in 1922, on the advice of Mr. Winston Churchill, then Colonial Secretary, to withdraw all

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Army units from Iraq and entrust the protection of the newly-created Kingdom of Iraq to the Royal Air Force.

The R.A.F., he said, had lived up to the trust placed in it, first by safeguarding Northern Iraq against aggression, then by defending the southern provinces against raiding tribesmen and finally by providing the central administration with a means of exercising effective military control while the Iraqi forces were being built up.

Today it was in Iraq for two reasons only—first, to maintain certain important staging posts on the Far East air route, and secondly to help defend Iraq against attack if need be. A.H.Q., Iraq, was the symbol of Britain's good faith and determination to honour her pledges to Iraq, with whose growth and progress Britain has always been so closely associated.

FAR EAST

Youngest Squadron of the Malayan Auxiliary Air Force

With Royal Air Force aid and encouragement in the form of aircraft, flying instructors and ground technicians, the Kuala Lumpur Fighter Squadron, youngest of the three squadrons of the Malayan Auxiliary Air Force, is making good progress and pilots and ground crew are showing marked promise and adaptability.

The Squadron, formed less than two years ago, has fourteen pilots, a high proportion of whom are either Indian or Malay, and it is hoped to increase the number to twenty in the near future. In Tiger Moths or Harvards the Squadron totalled 860 flying hours last year and it is expected that this figure will be greatly exceeded this year. The Squadron hopes eventually to be equipped with jet Vampire fighters.

In the ranks are eighty airmen of different Malayan nationalities and of different servicing trades—fitters, riggers, electricians, armourers, etc.—who attend mid-week lectures and practical training at week-ends at the Squadron Headquarters on the Kuala Lumpur airfield. They come from a variety of homes and a variety of occupations—from Kuala Lumpur offices, rubber plantations and tin mines near by and from the senior classrooms of a number of schools.

The rate of attendance at lectures and parades is high and the instructors describe their pupils as "a grand lot," servicing teams showing as much keenness to keep the aircraft serviceable and ready for flight as the pilots do to fly them competently. A happy spirit pervades the unit, instructors and pupils working harmoniously together, regardless of difference of race and outlook.

2,285 R.A.F. Names in the Burma Book of Remembrance

The two volumes of the Burma Book of Remembrance, containing the names of the British men and women who gave their lives in the Burma Campaign, have now been placed in the Forces Memorial Chapel in Rangoon Cathedral.

At a service held recently in the Cathedral one volume containing the names of 2,285 members of the Royal Air Force, as well as the names of Royal Naval personnel who died in the campaign, were presented to the Bishop of Rangoon by Air Commodore E. L. S. Ward, D.S.O., Head of the British Services Mission in Burma (who also read one of the lessons at the service), and the other volume, containing the Army names, was presented by Colonel H. C. Baker-Baker, D.S.O., M.B.E., The Black Watch, Deputy Head of the Mission. The volumes have been placed in a glass case specially made for the purpose. They are open, and all who wish to do so may see them.

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R.A.F. Malayan Operations

The main feature of the offensive air operations in Malaya during the month of April was the heavy weight of bombs dropped by Lincolns of No. 1 Squadron, R.A.A.F., and Tengah and Butterworth-based Hornets which amounted to over 280 tons. In all 146 sorties were flown, the principal target areas being terrorist encampments previously located by aerial reconnaissance or as the result of information, in the states of Perak, Pahang and Johore, when air support was given to The Cameronians, The Worcestershire Regiment, The Somerset Light Infantry, Gurkha and Malay units.

Included in the total were a number of daily harassing attacks made in support of a food denial operation in Negri Sembilan in which Sunderlands of the Far East Flying-boat Wing made six sorties with fragmentation bombs. In the month the amount of supplies dropped to the security forces throughout the Federation by Kuala Lumpur and Changi-based Valettas of the Far East Transport Wing was 300,000 pounds, which was dropped to 144 jungle clearings. The total amount of supplies dropped since the commencement of the emergency in July, 1948, now exceeds thirteen and a half million pounds. Photographic reconnaissance Mosquitoes and Spitfires, in spite of adverse climatic conditions, have flown over one hundred sorties covering many thousands of square miles. Auster aircraft have carried out a very considerable number of visual reconnaissance patrols over some of the more densely covered areas of the Federation in search of terrorist encampments and patches of cultivation. During the month Valettas and Austers between them have dropped over four million surrender and safe conduct leaflets.

GERMANY

R.A.F. Win Inter-Services Drama Festival in Germany

For the first time the Royal Air Force won the Inter-Services Drama Trophy this year in the annual Inter-Services Drama Festival in Germany. The 2nd Tactical Air Force's winning team was from R.A.F. Station, Altona, and the play was Lord Dunsany's "Bureau de Change," adapted from a radio play to a stage production by the producer, Flight Lieutenant C. A. Richardson.

Last year the team from R.A.F. Station, Altona, were runners-up in the competition and won the R.A.F. Drama Shield.

Runners-up this year were the Rhine Army Theatre Club, who presented "The Man Who Wouldn't Go to Heaven." Four R.A.F. and five Army teams were chosen for the final performances, which were given on three nights in the Kur Theatre, Bad Oeynhausen.

East Germany Arms

Britain's Foreign Office has published some disquieting data on the extent of Communist rearmament in Eastern Germany.

Britain claims that in the last six months of 1952, between 35,000 and 40,000 more men were trained for military service and that at least 100,000 were now under arms.

All three arms of the East German forces were cadre forces, with a high proportion of officers, capable of rapid expansion.

A major part of the syllabus was devoted to intensive Soviet Communist political indoctrination.

The heads of the land, sea and air arms have been appointed Deputy Ministers of the Interior, providing a basis for a Ministry of Defence.

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A three-division corps has been set up at Pasewalk. It is reported to have received at least 350 T/34 Soviet tanks, and 200 guns of various calibres including 152 and 122 mm. howitzers, 76.2 mm. field and anti-tank guns, 45 mm. anti-tank guns, 88 mm. and 35 mm. anti-aircraft guns, and some 82 mm. and 120 mm. mortars.

Some eighteen regiments, not included in the corps, are believed to have each six to eight tanks, six self-propelled guns and forty other guns of various calibres. Substantial issues of small arms, Soviet-made, have been distributed, and transport is being turned out in East German factories.

A nucleus Air Police, including aircrew, is approaching 5,000 men, and the Sea Police number more than 4,000, with minesweepers and coast defence flotillas.

The Frontier Police number 25,000 men with automatic weapons.

And the para-military training of youth is being vastly extended among girls as well as boys.

THE SOCIETY OF BRITISH AIRCRAFT CONSTRUCTORS (NEWS ITEMS)

Air Trooping is Expanding

One of the most significant features of the cold war as far as British aviation is concerned has been the very great expansion of air trooping. As the newer types of aircraft become available, particularly the jet and turboprop transports, the Services plan to carry even more troops and their equipment by air.

The following statistics point up the growth so far: In 1950-51 trooping flights covered some 40,000 passenger miles. A year later trooping traffic had increased ten-fold, to four million miles. In 1951-52 22½ per cent. of all troops sent abroad went by air. In 1952-53, exclusive of north-west Europe, this had gone up to 50 per cent. About 85 per cent. of all trooping to the Middle East is now done by air. Since air trooping started in 1951 a total of over six and a half million miles has been flown.

For the future, Government and Air Ministry planners believe that the new Vickers 1000 jet transport coming along will revolutionize air trooping because it can carry 120 men and their equipment over very long ranges at something like ten miles a minute. They have also calculated that twelve Bristol Britannia turboprop troopers, with operating reserves, could cover all trooping movements to the Middle East and Far East. The same number could also cover all the trooping between the Far East and the Middle East.

Transport Command's New Types

Transport Command's future work will centre round the two new types of aircraft now coming along. One, the Vickers jet, is for fast, long-range, strategic work, carrying men and supplies quickly and economically to trouble spots.

For tactical work, where it is necessary to drop men and supplies from the air, or land them on rough, unprepared strips near the battle, the Command will use the big Beverley freighter. This can carry some twenty tons of men and supplies over about 1,100 miles.

Movable Tails for the Latest Jets

Fresh evidence that good ideas in aviation are never out of date comes with the news that the latest jet-fighters are being designed with the so-called "all-flying tail"—a moving tailplane controlled by the pilot's stick.

Yet this same flying tail was standard on some of the very early aircraft—

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for instance, the Morane Parasol flown by reconnaissance pilots in the early years of the First World War. Generally, though, the standard practice for years has been to have the tailplane fixed, with smaller surfaces behind it (the elevators) hinged so that they moved up or down. More recently, aircraft were designed with variable incidence tailplanes which could be moved to alter the trim or "sit" of the plane in the air at different speeds and loadings.

Finally, bringing designers back full circle, comes the movable tail on the newest high-speed jets—with elevators as well, to help control.

The reasons for this partial return to early practice are very different from those which prompted the pioneer designers. Today's problem is that of high speed. When flying fast, very big forces are needed to manœuvre the aircraft—which means that much bigger control deflections have to be applied. At these high speeds the elevators alone are comparatively ineffective, and the whole tail, elevators and all, has to be moved lock, stock and barrel.

On a fighter particularly, it is vital that the controls should act smoothly and powerfully at all speeds, so that the pilot can steady his gun platform with finger-tip control during the few vital seconds of a high-speed attack.

It is easy to see that even a sleek streamlined fighter, when in the grip of a 700-m.p.h. wind (made by its own speed through the air), must have large forces applied with its control surfaces to make it manœuvre quickly.

In fact, these forces are so great that considerably more than human strength is needed to move the controls, and powered controls have to be fitted to provide the pull for the pilot. As an example, the electrical mechanisms which actually do this work and move the all-flying tail on a typical jet-fighter can exert a force of up to 10,000 pounds.

The all-flying tail, though it moves with the pilot's stick, does not, of course, move through as big an angle as the elevators, which may still move through twenty degrees or more. In practice, it is usual for the tailplane to change its angle by some two or three degrees for every ten degrees deflection of the elevators; they are geared together to move in a smooth combined motion.

Automatic Stabilizer Keeps Jets Steady

The expert marksman who gets the judders as he is raising his rifle to his shoulder can put things right by using a gun-rest or controlling his breathing. The fighter-pilot who is using his aircraft as a gun-platform has just the same delicate problem of sighting, but there is not much he personally can do when his aircraft shows a tendency to "snake" about the sky.

Designers have now come to his rescue with a light-weight "auto-stabilizer" which registers fractional movements almost before they happen and make a corrective action on the fighter's rudder. The device will be fitted to British jet-fighters.

Britain Plans to Fight Submarines with Helicopters

The Royal Navy is planning to develop helicopters for anti-submarine patrols—not only for search work, but also for offensive strikes against the enemy. The type used will probably be an adaption of an existing large helicopter design.

The intention is to have the helicopters on board ship and fly them off on comparatively short-range patrols. The longer-range patrols will be flown by the Gannet turboprop carrier-borne search-and-strike aircraft and by shore-based aircraft.

Details of the helicopter's intended search-and-strike technique are secret,

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and so is the equipment they will carry. They will fit into the new pattern of anti-submarine warfare developed by the Navy for its sub-hunting ships, which includes guided torpedo, an electronic mortar and a new sonobuoy—a device which is dropped into the water and sends out signals which indicate the position of any submarine in their path.

Air Force Orders One-man Radar Guide

The Royal Air Force is to equip some smaller airfields with a simple one-man radar aid which guides aircraft in to land in all weathers. The new aid will go to those airfields where traffic is not heavy enough to justify a large, expensive G.C.A. (Ground Control Approach) installation. The first fifteen sets will be delivered this year.

The complete equipment weighs approximately 1,500 lb., including the power supply, and its designers believe that it could be carried up to an advanced airfield by one or two large helicopters and set up in a tent in a matter of hours.

The approach aid works on the principle that when a pilot nearing the airfield calls up the tower on his V.H.F. radio, his bearing from the tower can be established by a manually rotated V.H.F. direction-finder and this bearing linked to a radar "dish." The radar scan thus automatically covers the general direction of the aircraft, and the pilot then flies at a safety height until the controller locates his position exactly on his radar screen by the appearance of a "blip."

The pilot is then given a bearing to fly towards the airfield, and told the height he should be flying appropriate to his distance from the end of the runway, so all he has to do is to control his rate of descent accordingly.

As the aircraft gets nearer still, the controller can increase the scale of the screen so as to be able to give the pilot his last-minute instructions with greater accuracy. A typical controller's instruction might be: "Your heading is good, half a mile to go, your height should be 1,000 ft."

The aid does not, of course, bring the pilot's wheels right to the runway, as does the conventional G.C.A., and it handles only one aircraft at a time, but it is estimated that a single controller can bring in ten or twelve aircraft an hour without difficulty in any weather except the most complete "clamp."

The aid does not have to be sited at the end of the runway in use. The controller can make allowances so as to bring the aircraft in at any runway on the airfield.

The Percival Jet Provost ab initio Basic Trainer Development

The advent of supersonic fighters and high-performance jet-bombers obviously necessitates some revision in the pilot-training syllabus. An order has been received by Percival Aircraft Ltd. from the Ministry of Supply for a number of side-by-side two-seater jet-trainers adapted from the Percival Provost T. Mk. 1 for the Royal Air Force.

New Jets for Aerial Photo-Reconnaissance

Jet photo-reconnaissance aircraft are being developed for the Royal Air Force to keep pace with the new high-speed fighters and bombers now in production for the squadrons. Three new types are to be produced—a short-range fighter reconnaissance aircraft, a medium-range type based on the Canberra bomber, and a long-range machine.

The short-range P.R. fighter will be a version of the supersonic Vickers Swift. The medium-range English Electric Canberra P.R. aircraft is already in

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quantity production and will be joining photo-reconnaissance squadrons under the operational control of Bomber Command later this year. The long-range P.R. force will be equipped with a type developed to match the new V-class of jet-bombers (the Vulcan, Victor and Valiant). It will be a version of the Vickers Valiant.

Aerial photographic aircraft—the "eyes" of the strike force—have to be capable of flying to the heart of defended enemy territory, and this is only possible if the P.R. aircraft can out-fly the enemy's front-line types. This means that aircraft may have to fly far faster and higher than was necessary or possible ten years ago, and over double the range. This in turn calls for new equipment in the aircraft. The new cameras now coming along for high-altitude work have twice the focal length (up to 48 in.) of previous models, and have to take pictures so rapidly that exposure alone is not quick enough to get a clear picture, and there has to be an "image-compensator" inside the camera to prevent blurring.

Low-level photography has also been greatly speeded-up. Cameras now in production for this work have an exposure time of one 2,000th of a second and will take eight pictures a second with perfect clarity.

ITEMS FROM AMERICAN SOURCES

Radio-controlled Airborne Lifeboats

Radio-controlled airborne lifeboats which can be dropped and directed to survivors by rescue aircraft are being developed. Final tests are now in progress on a radio-controlled version (Westinghouse) of the Air Force's A-3 droppable lifeboat. Douglas Aircraft Co. and the Marine Aircraft Co. are both working with the Air Force on advanced lifeboats of the radio-controlled type.

New Robot Pilot-cum-Navigator

A new electrical brain developed for the United States Air Force which enables an aircraft to take off, fly on a prescribed course to a given destination and then land—all without a human hand touching the plane's controls—was announced jointly recently by Minneapolis-Honeywell Regulator Co. and Air Research and Development Command Headquarters.

The "brain" takes over many of the duties normally performed by a human pilot by "memorizing" a flight plan from punched tape, and then converting information from a myriad of instruments, sensors, computers and navigational aids into electrical impulses that go to the plane's autopilot and airspeed systems to carry out the plan.

New High-altitude Suit

Development of a new emergency pressure suit, enabling pilots to survive the near vacuum of the upper atmosphere altitudes above 45,000 feet, was announced. Called a T-1, high altitude suit, it is worn uninflated and inflates automatically when cabin pressurization is lost.

Swept-wing Fury

The United States Navy recently accepted the first production model of the FJ-2 Fury, a 650 m.p.h. swept-wing carrier-based jet-fighter. Although similar in configuration to the F-86 Sabre, famed victor of the Korean skies, the FJ-2 is an entirely different aeroplane designed especially for carrier operations. It is a development of the FJ-1 Fury, straight-wing jet-fighter which was the Navy's first operational jet.

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THE ROYAL AIR FORCE SPORTS NEWS

R.A.F. SWIMMING ASSOCIATION

Group Captain D. A. Wilson, of the Medical Branch of the Royal Air Force, now serving at the R.A.F. Central Medical Establishment in London, has been elected Chairman of the R.A.F. Swimming Association in succession to Air Commodore J. Marson, who has been made a Life Vice-President of the Association.

The R.A.F. and W.R.A.F. Inter-Command and Individual Swimming Championships will be held at R.A.F. Station, St. Athan, Glamorgan, on 25th, 26th and 27th August, and the Inter-Services Swimming Championships at Eltham Baths, London, S.E., on 16th and 17th September.

R.A.F. FOOTBALL ASSOCIATION

Air Marshal L. G. Harvey, C.B., has consented to become President of the R.A.F. Football Association in succession to Air Chief Marshal Sir Leslie Hollinghurst (retd.).

NEW PRESIDENT OF R.A.F. EQUITATION ASSOCIATION

Air Chief Marshal Sir William Dickson, Chief of the Air Staff, has consented to become President of the R.A.F. Equitation Association in succession to Air Marshal Sir Aubrey Ellwood, who has retired from the Royal Air Force.

BRITANNIA SHIELD COMPETITION

As a result of the Britannia Shield Competition last year, £1,300 has been sent to the R.A.F. Benevolent Fund to be placed to the credit of the Britannia Shield Scholarship Fund for the education of sons and daughters of deceased or disabled R.A.F. personnel. The competition is a series of sporting contests held annually between Service teams of allied nations, and will be held again this year in October.

SKI-ING HOLIDAY FOR CANAL ZONE AIRMEN

Royal Air Force officers and airmen in the Suez Canal Zone are given the opportunity of spending a fortnight's ski-ing holiday in the 6,000 ft. Lebanese mountains near Beirut.

At the invitation of General the Emir Chehab, Chief of the Lebanese Armed Forces, small parties of the R.A.F. and the British Army are flown in R.A.F. aircraft engaged in training flights to Beirut from Fayid in the Canal Zone. The first R.A.F. party have recently returned with excellent reports of the facilities and hospitality offered them. Ski-ing equipment was provided without charge, and instructors from the Lebanese Army Ski School, where Lebanese Alpine troops are trained, gave their services to the English skiers.

One of the members of the first R.A.F. party to take advantage of the opportunity described the ski-ing as "every bit as good as Switzerland, and at a fraction of the cost." Under this Lebanon leave scheme the charge to each individual is only £5 for the entire fortnight.

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R.A.F. CRICKET ASSOCIATION

The Royal Air Force Cricket Association, of which Her Majesty The Queen is Patron, has a strong fixture list for the season which opened in May with a three-day match against Northants.

In June further three-day matches were played against Somerset at Taunton and, later in that month, against a Pakistan XI, which included six or seven of the probable test side to tour England in 1954.

On 11th, 13th and 14th July a match was played at Trent Bridge against Nottinghamshire.

In August our eleven goes to Lord's for the inter-Service matches against the Royal Navy and the Army, and we hope that our side will be then sufficiently formidable to win the Inter-Services Championship outright. Last season the Royal Air Force drew with the Army, both sides having beaten the Royal Navy.

Ten of the fourteen players who made appearances in last season's undefeated side are again available, and in addition the Rev. W. E. G. Payton (Cambridge University, Nottinghamshire, Derbyshire and Combined Services) is back in this country from a tour of overseas service. Captain of the eleven is Squadron Leader A. C. Shirreff (Cambridge University, Hampshire, Kent and Combined Services), and the Hon. Secretary and Team Manager is Squadron Leader L. H. Clint.

FOURTEEN R.A.F. SPORTS

The summer section of the R.A.F. Athletic and Games Handbook is now available. It deals with athletics, cricket, cycling, equitation, gliding and soaring, golf, lawn tennis, modern pentathlon, model aircraft, mountaineering, sailing, shooting and swimming, and gives details of the R.A.F. associations concerned with them.

TO HONORARY SECRETARIES OF SPORTS ASSOCIATIONS:

Owing to the difficulty in obtaining up-to-date and interesting news of the activities of the many Sports Associations in the Royal Air Force, Hon. Secretaries are invited to contribute brief accounts of their Associations' activities.

The wide publicity such items will have through the columns of this Journal should stimulate interest and increase support throughout the Royal Air Force in each branch of sport publicized.

What an opportunity! It is hoped all Hon. Secretaries will co-operate.

First contributions should be posted to reach the Editor, "The Royal Air Force Quarterly," c/o Gale & Polden Ltd., Aldershot, by 15th August, 1953.

If recent photographs are available, they should accompany the write-up, as these would add greatly to the attractiveness of the article.

EDITOR.

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CONCERNING PERSONNEL

ROYAL AIR FORCE PROMOTIONS AND APPOINTMENTS

Among the promotions and appointments announced by the Air Ministry since the issue of April, 1953, number of this Journal are the following:

AIR MINISTRY

Air Commodore L. T. Pankhurst, C.B.E., as Director of Postings (A).

Air Commodore R. W. L. Glenn, as Director of Postings (B).

Air Commodore F. J. A. Tanner, as Director of Ground Defence.

Air Commodore John Mutch, C.B.E., as Director of Technical Training.

Air Commodore T. C. MacDonald, A.F.C., as Director of Hygiene and Research.

Air Commodore North Carter, C.B., D.F.C., as Director of Personnel Services (Provost Marshal) and Chief of Air Force Police.

Professor O. G. Sutton, C.B.E., D.Sc., F.R.S., J.P., as Director of the Meteorological Office.

Rev. T. Madoc-Jones, O.B.E., as Honorary Chaplain to H.M. The Queen.

MINISTRY OF SUPPLY

Air Commodore J. A. Hawkins, C.B.E., M.I.Mech.E., as Director of Servicing Research and Development.

FIGHTER COMMAND

Her Majesty The Queen has approved the appointment of Air Marshal Sir Dermot A. Boyle, K.B.E., C.B., A.F.C., as Air Officer Commanding-in-Chief Fighter Command, Royal Air Force.

BOMBER COMMAND

Air Vice-Marshal J. R. Whitley, C.B., C.B.E., D.S.O., A.F.C., as Air Officer Commanding No. 1 Bomber Group.

Air Commodore P. B. L. Potter, O.B.E., as Principal Medical Officer at Headquarters, Bomber Command.

TECHNICAL TRAINING COMMAND

Air Commodore J. D. Baker-Carr, C.B.E., A.F.C., as Officer Commanding No. 4 School of Technical Training.

TRANSPORT COMMAND

Air Commodore V. D. Morshead, as Senior Technical Staff Officer at Headquarters, Transport Command.

GERMANY

Air Vice-Marshal W. G. Cheshire, C.B.E., as Air Officer in Charge of Administration, 2nd Tactical Air Force.

MIDDLE EAST

Air Vice-Marshal R. H. Stanbridge, O.B.E., Q.H.P., as Principal Medical Officer, M.E.A.F.

Air Commodore J. M. Cohu, C.B.E., as Senior Air Staff Officer, No. 205 Group.

Air Commodore J. H. Harris, C.B., C.B.E., as Senior Ground Defence Staff Officer at Headquarters, Middle East Air Force.

Air Commodore L. Taylor as Senior Equipment Staff Officer, M.E.A.F.

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ROYAL PAKISTAN AIR FORCE

Air Commodore W. R. Worstall, O.B.E., A.F.R.Ae.S., has been seconded for service under the Government of Pakistan as Assistant Chief of Staff (Supply and Technical Services), Royal Pakistan Air Force.

HOME COMMAND

Air Vice-Marshal V. S. Ewing, C.B.E., as Principal Medical Officer.

MAINTENANCE COMMAND

Air Commodore J. E. R. Sowman as Senior Air Staff Officer, No. 40 Group.

ROYAL AIR FORCE STAFF COLLEGE, ANDOVER

Air Commodore G. P. Chamberlain, C.B., O.B.E., as Commandant.

GUERNSEY GOVERNOR

Air Marshal Sir Thomas Elmhirst as Lieutenant-Governor of Guernsey in October, 1953.

NEW TITLE AND NEW COVER DESIGN FOR "THE QUARTERLY"

Arising from discussions at the Air Ministry Advisory Committee meetings, same time, more in keeping with the new title and contents of "The Quarterly" and Commonwealth Air Forces Journal." In view of the fact that the contents of our JOURNAL now cover a much wider field, embracing matters concerning air power on a world-wide scale, it was thought that not only was the dual title too cumbersome, but that the main title was now too parochial. This was strongly supported by the representatives of the Air Ministry and those of the other air forces of the Commonwealth of Nations, as a possible means of increasing still further the close co-operation of our air forces. The new title for our JOURNAL will be:

AIR POWER

THE AIR FORCES QUARTERLY

It was further suggested that a new cover design should be produced at the same time, more in keeping with the new title and contents of "The Quarterly" and it is hoped that the design finally selected will meet with the approval of those who have supported us in the past and possibly attract increased support.

Similarly to that day in 1949, when we announced our intention to alter the format of "The Quarterly" and make fundamental changes in our editorial policy, we publish this further intention to advance with the times and be more progressive with feelings of *faith, hope* and the need for a little *charity* from some of our older readers. We have *faith* in the reasons which decided us to make the change, *hope* that the reasons are amply justified and that those who are averse to changing old-established customs for new ones will show some *charity* in their criticisms of the "new look" of a very old friend.

It is anticipated that we shall be able to introduce these improvements with the issue of our October number.

THE EDITOR.

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ON WRITING LETTERS TO COLLEAGUES, ALBEIT SUPERIORS

I RECEIVE many letters from my Service colleagues—I mean from brother officers of all ranks—who, while wishing to show due courtesy to one of higher rank, demonstrate in the letters they write a lack of understanding of the private relationship which should exist between officers, and a lack of thought about what they write, why they write it, and how and upon what they write it.

Suppose me, for a joke, to be Air Chief-Marshal Sir Boumphrey Bounce. (Of course, I pronounce that Bumfry Bunce.) My more bouncing equals usually write "Dear Old Bum." My less-close friends or more respectful equals and superiors address me "My dear Bunty." My junior brother officers, when writing to me privately on a matter upon which they feel entitled to write to me privately, should begin not "My" this or that, not just "Sir," but "Dear" something. I do not have to *be* a dear in their eyes; I only need to be presumed to be dear to someone or dear as a matter of form. (After all, "Mr." is now hardly denied as a title to any man, and that is French for "My senior," so one can easily say "Dear" to anyone.)

Now the question is, "Dear" what? Certainly not "Dear Air Chief-Marshal Sir Boumphrey Bounce." (Don't forget the hyphen in the rank and the single "l," as in corporal and other ranks ending with an "l.") Air Chief-Marshal Sir Boumphrey Bounce is too much! To begin with, in private parlance one does not qualify Air Marshals with Vices or Chiefs; one just makes do with Air Marshal. (And no hyphen there, by the way. It is only double-barrelling of ranks that takes a hyphen to make it properly double-barrelled.)

But if you don't like to cut the rank *down*, then cut it *out*, and say "Dear Sir Boumphrey." That, however, is a little more familiar than "Dear Air Marshal Bounce." In between those two shades of friendly expression there is the third alternative, "Dear Air Marshal." Of those three alternatives, if you don't know the man personally it's most service-like to write "Dear Air Marshal Bounce," omitting the Sir and the Chief and the Christian name.

On no account in a private letter begin "Dear Sir" or "Sir." That just shows that you don't realize that you are a brother officer and off duty.

In what you say in your letter you will want, of course, to be courteous. But for goodness sake do not be servile. In an official letter it is right to adopt the attitude of the traditional "obedient servant." Not in a private one.

When you have said what you need to say, it's usually best to say no more. No harm adding something of interest that you are *sure* will give pleasure. And if you know Lady Bounce and/or any of her bouncing daughters or bounderish sons, by all means send one and all your kind regards or remembrances (if there's anything worth remembering beyond kind regards). Then end up. Avoid such clichés as "Compliments of the season." If you mean "Happy New Year," say so.

As to the ending, "Yours sincerely" is always right. "Sincerely yours" would often be insincere. "Yours very sincerely" shows that you think it possible to be more sincere than sincere. "Yours truly" is not for brother officers—it goes without saying. "Yours faithfully" is for a trade relationship where faith in contract is implied. "Yours ever" is for friendship believed to be everlasting. "Yours aye" seems to be a flinching from the significance of ever, except when written by a Scot!

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Then sign your name so that it can be read by someone other than yourself. And don't put your rank. Why? I don't know. It just shouldn't be done—any more than when your C.O. hails you in the dark and says "Who's that?" you reply "Jenkinson, sir," not "Jenkinson, Squadron Leader, Royal Air Force, sir."

Now a word about writing and stationery, and addressing.

If you are unalterably ashamed of your handwriting, you may demonstrate that fact by using a typewriter. Otherwise, for a short private letter to a superior, write it in your own hand. Everyone knows that's quicker and more personal. To use a typewriter for a brief note is like shaking hands off parade with your glove on and without looking your man in the eye.

Use quality notepaper. Most men haven't any, these days. Often their wives have. But usually a wife's choice notepaper is unmasculine.

In a dictated or a business letter, or those typed by a typist, it is usual to put at the top of the letter the business name and address of the writer so that the recipient shall easily know how to reply. That is not a necessary thing for a junior to do in a private social note. If you think that the recipient won't know who you are, remind him in the body of the letter—or let his P.A. find out; but don't make a puzzle of it.

At the end of a letter done by a typist it is customary to type in the name and address of the intended recipient. That's a safeguard so that the originator of the letter may know that it is going to the right person and place, and so that if the typist puts it in the wrong envelope the wrong recipient will send it on to the right one. But in your case, you yourself are going to write your own envelope; so don't write Sir Boumphrey's rank, name, decorations and address at the bottom of the page—put them on the envelope.

In addressing envelopes it is necessary to find out whether the recipient has any decorations, and to address the envelope accordingly. For example: "Group Captain J. Smith, O.B.E." When doing so, care is essential, as certain symbols are shown after an officer's name in the Navy, Army and Air Force Lists which should not appear on letters. For example: p.s.a., p.s.c. and i.d.c.

If uncertain of the exact decorations or unable to ascertain them, it is better to omit them altogether than to guess them. There would seldom be any excuse for this as, if an official list is not available at the moment, a telephone call to any orderly room will quickly provide the information required.

Rank titles should not be abbreviated on envelopes. Never address an envelope "A.V.M." Be correct and put "Air Vice-Marshal."

Then finally, when you get an invitation written in the third person, reply in the third person—that is, as though someone else altogether was just stating facts for you. Don't say: "Squadron-Leader (hyphen is right) Jenkinson and my wife thank you for your invitation for the 17th March and will be glad to accept." Say: "Squadron-Leader and Mrs. Jenkinson thank the Honourable and Mrs. Basing-Stoke for their kind invitation and have" (*not* "will have," at some future date) "much pleasure in accepting."

The object of this treatise is to show *how*. It is based on many nice letters which show that far too many officers do not know how, and have not thought enough about what it really means to be an officer in the service of Her Majesty the Queen. There's a good deal to be read between the lines of this treatise, and between the lines of private letters, which ought not to be neglected. Do not let it be thought, incorrectly, that you lack culture in one of the oldest of all the arts of civilization—the art of affecting a reader in the way you want to affect him.

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ANNALS OF AN ADJUTANT—2

By Wing Commander C. N. Foxley-Norris, D.S.O.

1.

File: LC/89/Org.

M.14

GP. CAPT. S. T. AYSHUN-MARSTER

1. At E.12 please see a letter from Group about this year's A.O.C.'s inspection. As you will note, it is scheduled to take place on 20th June, i.e., in two months' time. A list of pre-A.O.C.'s visits by various Staff Officers is also given in the letter; the first of these is due on 26th May.

H. TRIER
Flt. Lt.
Adjutant

22 Apr. 53

2.

File: LC/89/Org.

M.15.

ADJUTANT

1. Your M.14: thank you. It is unfortunate that the A.O.C. has decided to visit us while Wg. Cdr. Trore is on this long Senior Administrative Officers' Raffia course, or whatever it is, but we shall have to make the best of a bad job. This means that most of the responsibility on the organization side will fall on you; but it can't be helped and you should have plenty of spare time to handle it.

2. Now I don't want too much "bull" on this occasion. The A.O.C. realizes that we are a working station, and he will want to see us at work. So not too much of this "If it moves, salute it—if it doesn't, whitewashit." On the other hand I want everything on the station in absolutely tip-top condition, and as smart as we can make it; I trust I make myself clear. We are all in this, and I shall be probing around myself a good deal in the interval, and I don't want to find any scruffiness or slackness.

3. One small point. The A.O.C. will arrive by air as usual, and I shall naturally meet him in the staff car. Since that B.F. in a horse and cart stopped so suddenly on the Gaffercombe road the other night, the car doesn't look its best, in spite of Sgt. Sprokit's efforts. See what you can do about getting a replacement, will you? Group may take a little convincing as I'm not sure they were ever actually informed of what was, after all, a very minor incident, but I am quite sure that a tactful and explanatory letter will soon get results.

S.T.A.M.
Gp. Capt.

25 Apr. 53

AN EXTRACT FROM S.R.Os.—26 APR. 53

A.O.C.'s ANNUAL INSPECTION

1. The A.O.C. will inspect R.A.F. Little Clewing on 20th June. Pre-A.O.C.'s inspections of individual sections will be carried out by Staff Officers concerned, commencing 26th May. Officers and N.C.Os. i/c sections are to ensure a high

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standard of efficiency and smartness. Preliminary inspections, without prior notice, will be carried out at intervals by the Station Commander.

2. The A.O.C. will arrive by air and be met by a Guard of Honour. This is to be commanded by Flt. Lt. Prong, R.A.F. Regiment, in addition to personnel of the Regiment and the station band; contingents are to be provided by all sections to produce a total of 54 airmen and 18 airwomen. Personnel are to report in accordance with attached roll; exemptions and amendments are to be submitted in writing. Practices for the parade are to commence forthwith after normal working parade, i.e., at 0810 hours daily.

4.

A NOTE

FLG. WG. ADJT.

S.H.Q.

Dear Bob,

Congratulations! Of the 12 on the station, you are the only man running a section who hasn't asked for at least 50% exemptions from these morning parades. Remind me to buy you a small lime-juice.

(Sgd.) HARRY TRIER

1 May 53

5.

A REPLY

ADJUTANT

Dear Harry,

Thanks for your note. To tell you the honest truth, I've been pretty busy lately, what with the golf meeting and one thing and another, and I haven't been able to get around to my "In" tray much. I've just read your notice about the parades though, and I'm sorry to say that it's quite out of the question to let you have all these chaps first thing every morning. For instance, A.C. Curate has to make up the charts and stateboards every morning before the Wing Co. comes in—he's the only one who can make him understand them—and we can't possibly spare all those air traffic bods at one time, and so on.

I've gone into it pretty carefully, and I reckon I can let you have a couple of W.R.A.F. and one airman; latter is away sick at present, but should be back any moment—the quacks are pretty hot these days, you know.

Hope this will be O.K.

As ever,

Bob

2 May 53

6.

A FURTHER EXTRACT FROM S.R.Os.—8 MAY 52

REHEARSAL PARADES

1. As it has proved impracticable to obtain sufficient personnel for rehearsal parades during normal working hours, all personnel detailed for above parade will in future report to the parade ground at 0730 hours daily.

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7.

ANOTHER LETTER

Dhirtipore Cottage,
Clewing.

15th May

Dear Sir,

What the devil's going on over at your barracks? It's bad enough with these confounded machines deafening us all day—why don't they fly at a reasonable height?—but at least up till now we've been able to get a good night's sleep. Now every morning I'm woken up at some ungodly hour by an infernal braying and tootling. What the deuce are you running over there—a musical bundobast?

My memsahib and I settled down here for some well-earned rest and retirement, but if we can't get the peace we expect and are entitled to, I'll have to put the matter in the hands of my man of business. In the meantime I shall be interested to hear what steps you propose to take to abate this nuisance.

Yours very truly,
RODERICK I. PICKLESTICK
Major General (Retd.)

P.S. Incidentally, the last bit of "Colonel Bogey" isn't umpty-umpty-umpty-pah, it's umpty-umpty-*poom*-pah. If you're going to make a row, at least you might get the music right.

R.I.P.

8.

A LETTER

14th June

Dear Mr. Trier, Sir,

As you know I have never been one to complain or make trouble, but nor have I ever been one to be put upon, and this time things have gone too far and something ought to be done. My husband says it's just the Flight Sergeant's way, but I say fair's fair and if my kids aren't good enough for this station there's lots of others would be glad to have them. Yesterday my kids, Frankie and Gregory and little Marilyn, were playing the same as usual around the quarters, perhaps making a bit of a row and getting themselves messed up a bit, but kids will be kids, when along comes Flight Sergeant Fizzer. Making some sort of list it seems, and when he saw my kids he called them over and told them that next Friday morning they weren't to be seen or heard anywhere around the station. No explanations of course, but if my kids can't carry on like kids around the station why do they build us quarters here anyway?

Another thing, Mrs. Snoop, next door, tells me that her kids have been told to be on hand at the Corporals' Club that morning, all spruced up for some presentation or other. There seems to be a lot too much of this sort of thing lately, for instance my husband's been leaving at quarter past seven every morning for some parade which means breakfast at quarter to, but I notice Corporal Snoop still seems to be able to go off at the usual ten to eight.

I know you'll want to avoid any trouble here, Sir, so I'll leave it up to you, and hope you'll be able to get things straightened soon and oblige.

Yours truly,
AMY WRIGHT
Mrs.

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9.

A NOTE

17th June

ADJUTANT

1. Here are a number of points that I have personally noted while I've been looking round the station during the last few weeks. As you'll see, some of them have been a bit delayed, but they are all important and must be fixed up before Friday. Numbers 13 to 21, you will note, are airmen's special requests for interviews with the A.O.C.—we shall need all their papers and records up to date of course. Number 31 is rather interesting—a report from the M.O. on the remarkable recent increase in flat-footed men on the station. This will give us something to discuss at lunch anyway.

Any news on the car? Don't forget that I want a first-class show on Friday—the ball's in your court.

S.T.A.M.
Gp. Capt.

10.

A LETTER FROM THE A.O.C. TO THE STATION COMMANDER
PERSONAL AND CONFIDENTIAL

From: Air Vice-Marshal C. Baffle, C.B., D.S.O., R.A.F.

Headquarters,
No. 99 Group,
Royal Air Force,
Pudding,
Yorkshire.

99G/C.109/18/Org.

My dear Ayshun-Marster,

Yours, as you know, was the first station I visited this year, and I was much impressed by all I saw. The only points for criticism were the minor ones I raised at the time, and I understand the staff are dealing with them without difficulty.

Much of the credit for the efficiency of the station must go to yourself, but I should like you also to congratulate all those responsible for the smartness and keenness shown and for the smooth operation of the unit. Only one other thing worried me. While we were passing through to your office, I was rather distressed to notice the very crowded condition of your Adjutant's "In" and "Pending" trays. I know Trier is an enthusiastic and industrious officer, but he must learn that a minimum, not a maximum, of paper work is the hallmark of efficient organization. Perhaps you could have a personal word with him on the subject.

Thanking you for your hospitality on Friday.

Yours sincerely,

CHARLES BAFFLE

Group Captain S. T. Ayshun-Marster, R.A.F.
Royal Air Force,
Little Clewing,
Yorkshire.

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SHOOTIN'

By H. R. P. P.

I LOOKED Altcar up in the gazetteer. It lies between Liverpool and Southport, and it seemed a long way to go from where I live in order to fire twenty-four shots with a revolver. Especially as I was on leave. Especially as the forecast was cold and wet. Especially as my ability with a revolver is like my luck with a nutcracker; with infinite patience I get one or two good ones, but there are always several duds. Desperate in his need for a fourth man for the team, our captain plied me with strong liquor and flattery. I thought we had both sunk pretty low when I finally agreed to go.

At the ranges one must, at the outset, avoid anything likely to create an inferiority complex. Under heavy disguise, I made a preliminary skirmish to ascertain the location of the butts and the style of the competitors. To be correct one should wear oilskin over-trousers, hobnailed boots, and have an outsize pair of prismatic binoculars slung round one's neck. Alternatively, a small astronomical telescope with tripod may be set up on the tables provided. In order to accommodate the revolver to the hand which is to hold it, fancy butt plates are used. These range from finely carved walnut and old briar to polished ivory. There were no signs of arm stiffeners (but I noted that the arm muscles were freely exercised after dinner).

Narks at the game have two pistols, one for fifty yards and the other for shorter ranges. They also put out a regulated stop-watch on the bench before them. This, of course, is for their own information, but it also lets the range officer know that they are in no way intimidated by the one that he himself flourishes. The *pièce de résistance* is a small chest of drawers which contains a miscellany of ancillary equipment, e.g., various oils, brushes, files, gauges, pin vices, score blocks, ammunition racks and, I suspect, a small phial of brandy.

The real morale supporter, however, is a bullet gauge. Even to imply that a slightly over-sized hole in a favourable position on one's target is in fact the result of two shots is well worth the cost of carrying this small item. It is, of course, necessary to get at least one shot on the target before the gauge can be brought into play and this is an obvious drawback from my point of view.

Having made the most of my observation I returned to my room, unwrapped my pistol from my pyjamas, and sallied forth to have a few practices in the sweepstakes. The experts can always regard the tyros with more tolerance when they know that the entrance fees accumulate to their benefit and this, of course, makes the tyros feel less embarrassed too.

Next day the competition proper started. By this time I had mated up with another member of our team and we had discussed our plans. No alcohol the night before—early to bed—deep breathing exercises before breakfast. We would get to the butts early before a mass of competitors arrived. We did; there was one other gentleman there (except for the markers and range officer) and he had built himself a little wood fire and seemed about to throw his pistol into it. This turned out to be in fact not a gesture of despair but one of hope for he was doing no more than blacken the sights of his weapon to guard against reflection from the morning sun. Feeling rather conspicuous and slightly naked because we had no telescope, arm pads, knee pads, ground sheets, stop watches or chest of drawers, we retired to a small concealed arena in the sand dunes called "Revolver Chamber." Here we had a bright idea; we would warm up our

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weapons. We dallied and dillied, chattering cheerfully to show that we were not the slightest bit nervous. Should we wear macs. or not? Would the extra weight on the arm compensate for a possible attack of shivers in the morning air?

Eventually we emerged from our hidy-hole to make up one of the early details. The first practice is six shots deliberate at 50 yards. One can take one's time. One does. I raise my pistol at full cock. I remember precisely how much foresight to take. Then I remember my spectacles. Without them I can't see the sights. With them I can't see the bull. Sometimes I see two bulls; one is slightly below and to the right of the other. I find it best to aim between them. Ah! now that I've put my "specs" on I can get going. The aim is nice and steady. Don't pull the trigger. Just squeeze and squeeze and squeeze. Why the heck is it so stiff? It was only 4 lb. when I tested it yesterday. Holding this aim is impossible. I'm wobbling like a dypso—Hell! It has gone off just when a nasty gust of wind drifted my arm off the mark. Well, that's the first one anyhow; take more care with the rest. What's that the range officer is saying? Only ten seconds left? Crumbs! Come on chaps.

"Unload." "Prove your pistols." "Go forward to your targets." Mine has one shot in the middle and five in a line near the small printing in the corner. Pity. Had there been only four I might have used my gauge to some effect on the one which is dead centre. I settle for a score of 11 points, trying hard to screen it from my fellow cracksmen by maintaining an intense interest and admiration for their scores of 20 plus.

Two more practices follow. A deliberate at twenty yards and six shots in fifteen seconds at the same distance. Finally the rapid at ten yards in which we have to get off six rounds in ten seconds. I rather fancy my chances at this range for a number of reasons. I can see the bull even with my spectacles on, and with a long arm one seems comfortably close to the target. There are, however, two hazards. When you are cocked and at the "ready" you may, under the tension of the moment, shoot your own foot or your neighbour's. Similarly he (or she) may have a go at yours.

We have brushed out the cordite from the chambers, taken our stance, checked our aim, given our moustache a tweak and, at the command, loaded our gun. The interval before the whistle seems interminable. The first shot is all-important and we are just about to loose it off when our neighbour actually does so. With an uncontrollable reaction our wrist twitches to the right and our forefinger pulls viciously at the trigger. The other five rounds follow the first within the remaining eight seconds. We unload for the last time, prove pistols and walk forward. We are amazed that such a reckless discharge should have secured so moderate a result.

Ah, well. Was our journey really necessary? At the time perhaps we think not. We see the experts casually taking the practices in their stride—knocking up scores that amaze us. We think how much better we have done at other times on our home ground, and of our lamentable and erratic form in competitions; of our old age and rheumy eyes; and of letting the team down.

But when the Air Marshal gives away the trophies he says: ". . . and I want to thank the losers, because unless they came we couldn't have competitions . . ." and we feel a slight glow. Besides, one meets old friends and it's great fun. And who the blazes said we were losers, anyhow? Didn't we (in spite of my assistance) get a medal?

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LETTERS TO THE EDITOR

ROYAL AIR FORCE,
BIGGIN HILL,
NR. WESTERHAM, KENT.

The Editor, THE ROYAL AIR FORCE QUARTERLY.

DEAR SIR,

The History of Royal Air Force, Biggin Hill, is being written and I would be grateful if I could obtain the assistance of your readers in gathering the necessary material.

The station has a long and distinguished record and there must be many amongst those who have visited or served here who have interesting reminiscences or who possess photographs taken during their stay. I would be very pleased to hear from anyone who can help in this way. Every care will be taken of photographs or other material sent, which will be returned as soon as possible.

Yours faithfully,
T. A. LYCETT, *Flying Officer*,
for O.C., R.A.F., Biggin Hill.

AIR MINISTRY,
RICHMOND TERRACE,
WHITEHALL,
LONDON, S.W.1

The Editor, THE ROYAL AIR FORCE QUARTERLY.

DEAR SIR,

May I ask you to be kind enough to insert this letter in your correspondence column, inviting the assistance of any sailors, soldiers or airmen in my search for photographs of the 1940-41 battles in Greece and Crete.

I am particularly anxious to obtain photographs illustrating the terrain on the Albanian and Macedonian fronts, the retreat from Larissa to the Thermopylæ Line, any action at the front in Greece or Crete, the destruction at the Piræus, the sea battles, including strikes on enemy aircraft or on our own ships, and the air war. The official material available is very limited and, although books and publications dealing with this period have included several good photographs, I feel there must also be a wide selection of excellent photographs taken by those who were present during these fateful sea, land and air battles. I hope very much that I shall be able to include a selection of these in a study of the main sea, land and air operations, which is now almost complete and, for better or for worse, will shortly be in the hands of my publishers.

I will be most grateful for the co-operation of your readers in my quest, and I will naturally acknowledge and in due course return all photographs and negatives received. I would ask that they should be sent to me at the above address.

Yours faithfully,
J. R. GORDON-FINLAYSON, D.S.O.,
Group Captain, Royal Air Force.

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AIRVICE-MARSHAL H. B. GODWIN, C.B.E., ***C.D.***
Air Officer Commanding Air Materiel Command

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ROYAL CANADIAN AIR FORCE

R.C.A.F. AIR MATERIEL COMMAND

A brief description by the Air Officer Commanding

AIR VICE-MARSHAL H. B. GODWIN, C.B.E., C.D.

GENERAL

THE logistic support for the Royal Canadian Air Force is supplied by its Air Materiel Command. It operates within the general policy guidance provided by Air Force Headquarters, where policy staffs for each speciality are employed. A.F.H.Q. is also responsible for the final compilation of the budget and is also responsible for research and development. Thus Air Materiel Command has not got the task of full financial control nor does it in fact place the contracts. This latter is allotted to another Government Department. What Air Materiel Command does do is to implement all this and provide all other logistic support as well.

FUNCTION

The A.O.C. of Air Materiel Command is responsible to the Chief of the Air Staff.

(*a*) For the formulation and implementation of policy and plans to provide for the logistic requirements of the R.C.A.F.

(*b*) For the administration of the forces comprising Air Materiel Command that control maintenance, servicing, supply, inspection, storage and salvage.

(*c*) For the direction of testing and acceptance of aircraft, whether new or overhauled, and for associated equipment.

(*d*) For the ferrying of R.C.A.F. aircraft within the North American Continent.

FORMATION

To fulfil this function, the Command has five supply depots (one in the United Kingdom), two repair depots, three explosive depots, one construction and maintenance unit and four technical services units (one in the United Kingdom).

The forces comprising No. 1 Air Division are, with the exception of P.O.L. and some minor items, supplied from Canada through the R.C.A.F. Air Materiel Base in the United Kingdom.

ORGANIZATION

To administer these units, the Command H.Q. has the normal staffs of personnel, organization, finance and technical. But to perform the larger operation of logistic support to the entire Air Force, five logistic staffs and two executive staffs operate under the control of a Chief Logistics Officer of Air Commodore rank.

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The five staffs are: Aircraft, armament, equipment general, construction engineering and telecommunications.

These are self-explanatory except for equipment general. Here is a complex structure dealing in such things as safety equipment, paints, chemicals, textiles, P.O.L., heating fuels, packaging materials, mobile and marine equipment, clothing, barrack, medical, publications, tools, aircraft handling equipment, general hardware, etc.

Each of these five staffs has a similar function as each is wholly responsible for the equipments allocated to it. Supply personnel and technical personnel work in the same offices, on the same problems.

The function of each staff is:

(*a*) Responsibility for the procurement, financial control, distribution, maintenance, repair, overhaul, modification and disposal of relevant equipment.

(*b*) Advice on standardization.

(*c*) Provision of standard techniques for handling, operation and maintenance. These are known as Engineering Orders and are the backbone of serviceability.

(*d*) Identification, cataloguing and specifications.

(*e*) Approval of design changes.

(*f*) Preparation of yearly estimates.

Mention was made earlier of the two executive staffs working for the Chief Logistic Officer. The first is the Assistant Logistic Control Staff who apply the co-ordination to all activities affecting more than one logistic staff.

They prepare the complete logistic plans and co-ordinate the various financial estimates into a budget document for A.F.H.Q. The Budget and Fiscal section of Assistant Logistic Control also monitor all expenditures and insert a measure of control in the economics of purchasing.

Assistant Logistic Control is responsible for the mechanical accounting procedure, "panic" distribution problems and supply factors.

Assistant Logistic Services is the second executive staff. It establishes the ways and means to implement the plans and activities. It is concerned with all maintenance and supply procedures for the R.C.A.F. Management and direction of the receipt, warehousing and distribution is this staff's responsibility. Assistant Logistic Service directs the production, custody and distribution of all technical data required for the operation and maintenance of equipment.

WORK DESCRIPTION

Logistic Staffs

Each logistic staff has the same task and these can be summarized under the headings of requirements, procurement, storage, distribution, repair and overhaul.

Requirements

Requirements are obtained in the first instance by "provisioning teams," who, working with the contractor, prepare a schedule pertinent to the article to be bought. Later, figures are obtained from consumption records, from approved scales of issue and by research into new equipments and methods.

The task is complicated by the fact that the R.C.A.F. operates about fourteen times as many basic types of aircraft and engines (not including hosts of variants) than does the average airline, and operates hundreds of makes (not models) of motor transport. Add to this the variety of tools (United States and United

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Kingdom), lamps, valves, oil burners, refrigerators, hardware, radios, clothing, and so on, and the items stocked reach to a very large number indeed.

Procurement

Procurement is derived from the requirement, but to ensure its suitability a standard must be accepted or a specification written. Then of course each item must be positively identified and a catalogue of all items printed. This initial work is a tremendous task and is followed closely by Engineering Orders, which tells how to operate and repair each article.

To illustrate the rapid growth of the R.C.A.F., some general comparisons of procurement can be given.

The number of contracts has risen by two and a half times in the last year. The new aircraft, the spares, the construction engineering and signals programmes have each increased by about five times. Nor do these figures include pay and allowances, travelling, research or other items controlled by Air Force Headquarters.

Storage

Figures outlining storage cannot be given here, but the expanded air force, coupled with its improved operational position has caused the R.C.A.F. to build additional facilities to provide a further 1.5 million square feet of storage. This was done only after using all available buildings remaining from the war.

Repair

Air Materiel Command Headquarters is responsible for the administration and technical direction of two repair depots, one service manned throughout and the other operated by a civilian contractor. It is also responsible for contractual administration and direction of civilian maintenance and civilian overhaul contractors and for modification programmes.

During the rapid expansion of the R.C.A.F. civilian maintenance was used for certain stations to alleviate a shortage of trained men in some trades. This position is improving and Service personnel will again perform most of the work.

Vehicles are overhauled by one of two methods—Service repair shops or by civilian contractors, whichever is best for the locality and type of vehicle.

Disposal

Equipment that has become worn out or damaged beyond repair, or is obsolete, is declared as such. It is offered to other Government agencies and if not accepted is disposed of through the Canadian Assets Defence Corporation.

CONSTRUCTION ENGINEERING

Most of the larger projects are processed through a Governmental agency to civilian contractors. Air Materiel Command produces the specifications and drawings, provides field inspectors and acts as consultants. On the smaller projects and on remote work, a Construction Maintenance Unit—based at Calgary—is employed to do the work. This unit is capable of all types of work from erection of married quarters to runway construction.

QUALITY CONTROL

Quality Control is a responsibility of Air Materiel Command, and consists of checking the contractors' inspection system. The R.C.A.F. is responsible for all items that affect airworthiness. The Inspection Services of the Department

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of National Defence are responsible for the quality control of all other items for the Air Force.

MOVEMENTS CONTROL

It has been found necessary to set up movement control units to co-ordinate shipping, freight and airlift to Air Materiels Command. Their main task is the programming of material to the United Kingdom and Continental Europe—and to those Canadian stations supplied by sea.

CENTRAL EXPERIMENTAL AND PROVING ESTABLISHMENT

This unit performs almost all of the experimental work related to flying. It accepts all new or modified aircraft from the contractors—does cold-weather tests for Canada, for the United Kingdom and for the United States. Its tasks extend from guided missiles to cold-weather starting of aircraft. All new aircraft types and engines are tested by this unit.

SUMMARY

The Air Materiel Command implements the purchase of the right equipment, stores it and distributes it in the proper condition to the right place at the right time. It repairs all manner of equipment; tests, evaluates, accepts and ferries aircraft. Air Materiel Command details the stores accounting procedure for the R.C.A.F. The Construction Engineering staff erects and maintains buildings, lighting, sewage and heating plants, runways, roads and other civil engineering work.

Air Materiel Command stretches from Ohio, U.S.A., to Resolute Bay, N.W.T., and from British Columbia to the United Kingdom.

AIR COMMODORE HAROLD BRANDON GODWIN, C.B.E., C.D.

Air Commodore H. B. Godwin comes from Montreal (Westmount), where he was born in April, 1907. He was educated at McGill University, where he received his degree of B.Sc. (Elect. Eng.). He joined the Royal Canadian Air Force in 1928 and was squadron leader ten years later. He received promotion to wing commander in 1941 and to group captain in 1943.

After the outbreak of war he was stationed at Trenton and later at Montreal, Winnipeg and Ottawa.

He has specialized in signals for the R.C.A.F. and before the war was in the United Kingdom and the United States of America to gain a knowledge of latest techniques, which were incorporated into the R.C.A.F.

He was chief instructor at No. 1 Wireless School in Montreal and was instrumental to a considerable degree in introducing latest methods of radio communication in war-time operational aircraft.

He was Director of Signals in 1942. He also commanded R.C.A.F. Station Gander, Newfoundland, and served overseas with No. 6 Canadian Bomber Group, and after the war held a senior staff position at Overseas Headquarters in London.

From 1947 until 1952 he served at Air Force Headquarters as Deputy Air Member for Air Plans (P). In January, 1952, he was named as Air Officer Commanding, Air Materiel Command Headquarters, Ottawa.

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ROYAL CANADIAN AIR FORCE

CURRENT EVENTS

COMMONWEALTH AIR FORCES MEMORIAL IN ENGLAND UNVEILING

THE next-of-kin of nearly 3,000 R.C.A.F. officers and men who gave their lives in the Second World War during operations from bases in the United Kingdom and North-West Europe and who have no known grave have received invitations from the Imperial War Graves Commission to attend the unveiling by Her Majesty Queen Elizabeth II of the Commonwealth Air Forces Memorial at historic Runnymede in England next autumn.

The Memorial, which is being erected by the Imperial War Graves Commission, will be unveiled at 2.30 p.m. on 17th October, 1953. It was designed by Edward Maufe, R.A.

Altogether there were some 20,000 members of the Commonwealth Air Forces who died in the Second World War and who have no known graves.

A pilgrimage to Runnymede is being sponsored by the Canadian Legion, in conjunction with the Royal Canadian Air Force Association and the Imperial War Graves Commission, and arrangements for the return trip to Britain are being made with the Cunard Steamship Company Limited, Canadian Pacific Steamships, British Overseas Airways Corporation and Trans-Canada Air Lines.

Accommodation in England for next-of-kin, before and after the unveiling, and provision for visits to the Continent will be arranged for those who desire it by Thos. Cook & Son Ltd., while facilities for laying flowers and wreaths by relatives following the unveiling ceremony will be arranged by the Imperial War Graves Commission.

In addition to the next-of-kin of those without known graves, consideration will be given to next-of-kin of those buried in known graves to join the pilgrimage, the Imperial War Graves Commission announced. It was emphasized that neither the Canadian Legion, the Royal Canadian Air Force Association nor the Imperial War Graves Commission would be able to contribute toward the cost of the transportation or toward any other expenses incurred by those making the trip.

Persons wishing to join the pilgrimage may apply at their local Canadian Legion headquarters.

R.C.A.F. FIGHTER PILOTS IN KOREA

Three R.C.A.F. fighter pilots have been awarded United States decorations for operational flying in Korea while attached to the U.S.A.F.

Wing Commander James Douglas Lindsay, D.F.C., 30, received the United States Distinguished Flying Cross, while Squadron Leader Eric G. Smith, D.F.C., 32, of Navan, Ontario, and Flight Lieutenant Robert Emmett Lowry, 28, of North Bay, Ontario, were awarded the United States Air Medal.

R.C.A.F. fighter pilots have been serving in Korea with the U.S.A.F. since early in 1952. They serve for a fifty-mission or six-month tour of duty, whichever is the shorter time. To date, nineteen R.C.A.F. pilots have seen Korean service, running up an impressive score against Communist MiG-15 aircraft.

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Flying F-86 Sabre jets, they have destroyed eight aircraft, damaged eight others and probably destroyed one.

Wing Commander Lindsay is credited with destroying two and damaging three others during his tour of duty.

[Photo: National Defence, Canada

Explosion of Napalm Bomb, during Exercise "Bulldog", which was recently completed in the North-West Territories

EXERCISE WITH NAPALM BOMBS

A fire-power demonstration of napalm bombs was held at R.C.A.F. Station, Fort Nelson, for personnel taking part in Exercise "Bulldog," joint Army—R.C.A.F. winter training manœuvre just completed in the North-West Territories. Two bombs were dropped from a Mitchell bomber. Several hundred Army and R.C.A.F. personnel saw the demonstration.

Spectators standing some distance from the target laid out in the north-west corner of the airfield felt a surge of heat as flames leaped 50 ft. at the moment of explosion. Aircrews who saw the demonstration carried out napalm bombing runs on a simulated airfield target constructed on an island in the Mackenzie River south of Norman Wells.

The sleek, silver-coloured bombs were readily discernible as they plummeted earthward. A muffled report and a black mushroom-shaped smoke which rapidly dissipated accompanied the wall of flame. The weapon's effectiveness was aptly demonstrated.

LIGHT FLEET CARRIERS

If there is any ship of the R.C.N., other than the destroyers serving in Korea, which seems to have struck the fancy of the Canadian public it is the aircraft

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carrier *Magnificent*. The largest ship in the Navy, the *Magnificent* is 630 ft. long and has a displacement of 14,000 tons (19,550 tons fully loaded). Her 40,000 horse-power drives her at a top speed of nearly 25 knots. She carries two types of aircraft, the Sea Fury and the Avenger, about 32 of them in all. To man the ship about 1,200 officers and men are needed, nearly 300 of whom are concerned exclusively with the aircraft.

A successor to the *Magnificent* is under construction for Canada at Belfast, Ireland. The new carrier, the first to be owned outright by Canada, will be named H.M.C.S. *Bonaventure*. It will have a strengthened flight deck especially designed for the use of jet aircraft. There will also be a recently developed catapult that can launch aircraft down-wind or when the carrier is secured alongside a dock in harbour.

The *Magnificent* is what is known as a light fleet carrier. This type of carrier has been almost ideal for the post-war naval aviation training purposes of the Royal Canadian Navy. It is large enough and fast enough to participate in composite task forces such as those in last summer's N.A.T.O. exercises, and it is also capable of carrying out or simulating the functions of the convoy escort carrier.

In convoy the carrier has two functions. Its aircraft must be able to deal directly with submarines. They must also deal with aerial spotters for the submarine or with long-range bombers. The carrier should, consequently, have two types of aircraft (which the *Magnificent* has), one type carrying anti-submarine detection and destruction equipment, the other type consisting of high-speed fighters to deal with the spotters and bombers of the enemy.

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[R.A.A.F. Official Photo

The Minister for Air (Mr. William McMahon) takes a closer look at the Commanding Officer's Shield presented by Group Captain Black (second from left) to the apprentice flight obtaining the highest aggregate points. The occasion was the graduation of aircraft apprentices at Wagga, N.S.W.

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ROYAL AUSTRALIAN AIR FORCE

THE R.A.A.F. APPRENTICE SCHEME

THE Royal Australian Air Force trains its own technicians, organized in two systems. Under the Apprentice Scheme (entirely a post-war idea) the R.A.A.F. recruits lads to train as engineering tradesmen at the Technical College, Wagga, New South Wales, and as radio-radar technicians in Melbourne. The adult tradesmen go to Wagga and Ballarat.

After the war the R.A.A.F. realized the shortage of skilled tradesmen was an Australian problem. Industry was competing savagely, offering high wages which the R.A.A.F. could not parallel.

The obvious answer for the R.A.A.F. was to train its own tradesmen within the Service. The problem, however, was how to set up the necessary training organization in the minimum time capable of training tradesmen to meet both Service and civil requirements.

Lacking experience of such a scheme the R.A.A.F. went in search of information to the Royal Air Force at Halton.

A study of this R.A.F. scheme greatly assisted the R.A.A.F. in formulating the policy and training programme for its own project. One of the ticklish problems which was overcome by this study was the introduction of a curriculum, which gets the results without overworking the lads.

The R.A.A.F. set out basic plans for its own Apprentice Training Scheme in 1947. The four main objectives were:

(i) To place R.A.A.F. technical training on a sound basis.
(ii) To provide the R.A.A.F. with the most highly trained and qualified technicians.
(iii) To provide an exceptionally sound basis on which to recruit the best type of youth.
(iv) To provide each successful apprentice with a very necessary qualification for future employment on discharge from the Service.

The Australian Air Board approved the proposed Apprenticeship Scheme for certain technical trades on 20th August, 1947, and recommended that training begin the following January. Australian lads from fifteen to seventeen years with suitable educational standards were recruited to do a radio or engineering apprenticeship with the R.A.A.F.

The academic standard set for the radio apprenticeship was Intermediate Certificate, with mathematics and science compulsory subjects. The standard set for engineering apprentices was slightly lower.

R.A.A.F. Technical College, Wagga, New South Wales, became the training centre for the engineering apprentices. They train there as either a fitter-engine, -airframe, -electrical, -armourer, -driver motor-transport, or instrument maker. All apprenticed trades are in Group I, the highest trade group.

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As the trade unions have recognized the new organization at Wagga, apprentices trained there may pursue their trade in civil life after they have completed their term of service with the R.A.A.F.

Engineer apprentices study for three years at Wagga, and then train for one year at a R.A.A.F. unit under highly qualified supervisors, a period which is regarded as their field training. Although granted the paid rank of Aircraftman Class I, they are still regarded as minors until this year is completed.

At the end of their fourth year of apprenticeship all aircraft apprentices are trade-tested. If they attain the prescribed standard they are reclassified as Leading Aircraftmen, and automatically become eligible for further promotion.

The majority of the apprentices entering Wagga do so with the idea of training at a certain trade. The R.A.A.F. encourages this self-expression in the lads and makes every endeavour to train each lad in the trade of his choice. However, the lad's natural ability and the vacancies existing at the time of grading are the final factors determining in which trade he will continue.

During their first year at the College the apprentices remain ungraded and study the same subjects. They study general Air Force administration and other Service subjects, as well as technical subjects. Under the one heading—workshop theory and practice—they are taught basic fitting, materials, heat treatment, machine shop soldering, brazing and coppersmithing, welding and basic carpentry. Their educational studies are carried over the three years. The main subjects are English, social studies, maths, science and technical drawing.

At the beginning of the second year the apprentices are grouped into trades. The fitter-engine begins to apply the basic knowledge and skill-of-hand taught him in his first year in the maintenance, overhaul, repair and test running of aero-engines.

The same applies to the fitter-airframe, fitter-armourer, electrical fitter, instrument maker and fitter-motor transport. Each is taught to apply his first-year knowledge and advance a step further along the technical trade route mapped out for him. The mechanical transport fitter has an interesting future in the repair, maintenance and overhaul of Service road vehicles, earth-moving equipment, diesel motors and all haulage and mechanical lifting equipment.

The latter pieces of equipment are essentials for the work done by the R.A.A.F. airfield construction squadrons. This work takes the driver mechanical transport to outlying spots like Manus and other places to the North, often on pioneering and adventurous construction jobs, which most Australian lads find extremely satisfying.

The radio apprentices, on completion of their training, are eligible for an Associate Diploma of Radio Engineering, but they must complete their training at any approved technical college. A later development of this scheme has made it possible for the successful diploma graduates to take a Fellowship Diploma of Communications Engineering after a further two years' study. They are then granted a permanent commission. Several of the earlier R.A.A.F. diploma graduates are now studying for their Fellowship Diplomas. Negotiations are also in hand to enable the aircraft apprentice graduates to progress a step higher.

The R.A.A.F. was not able to set up its own radio training system within the Service for the exclusive training of apprentices, mainly because of lack of qualified training staff, and lack of practical laboratories for certain subjects. To select a site, rebuild it to suit the requirements and begin training by 1948 was too much to expect.

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A practical approach was made to the problem. An approved technical college must approve of the apprenticeship standard of training to award the coveted diploma—why not train the apprentices at a technical college? Melbourne Technical College agreed to train R.A.A.F. radio apprentices and award each successful graduate with a Diploma of Radio Engineering. This college had trained over 500 radio men for the R.A.A.F. during the Second World War and had the existing facilities to train the apprentices without further additions. The R.A.A.F. agreed to transport the apprentices to the College each day. Radio Apprentice School was set up at Frognall, an old mansion at Camberwell, Victoria, about five miles from the College. The lads are ferried to and fro each day in Service transport.

Frognall was already the R.A.A.F.'s main communications centre and had to be enlarged to accommodate the influx of young apprentices. However, they are kept apart from the older R.A.A.F. men and were not allowed to mix, except with the training staff. The same conditions apply at Wagga.

The Melbourne Technical College authorities drew up a special curriculum which condensed the normal course into a two-year period. This meant that the R.A.A.F. apprentices were in the city in the day time only.

During the first three months at the Radio School the apprentices do not study technical subjects. They do not start at the Technical College until they are emotionally settled and perfectly at home in their new surroundings and life. This early part of their training is most essential to fifteen-year-olds, many of whom have not been away from home before. They are completely settled and free in their minds by the time they start their technical studies at the College.

They spend two years at the Technical College and then go to the R.A.A.F. School of Radio at Ballarat, Victoria, for another year of Service training before graduation. They spend the final year of their four-year apprenticeship at an approved R.A.A.F. unit.

The two years at the Technical College are separated into Stage "A," of six months; Stage "B," of twelve months; and Stage "C," of six months. Stage "A" is devoted to maths, physics, engineering and workshop practical. Stage "B" covers maths, English, physics, chemistry, electrical principles, electrical and radio engineering, and radio draughting. Stage "C" they advance their radio and electrical engineering and move into the new field of industrial electronics.

On leaving the College the apprentices are well versed in the theory and practice of radar and television. They actually handle radar sets mounted on work benches, repairing them and gaining an intimate knowledge of what goes where and what for.

The field of advancement is wide open to all who graduate under the R.A.A.F. scheme. They can advance to the highest ranks by their own initiative and industry. They are eligible to apply for further training as cadets of the R.A.A.F. College at Point Cook, Victoria, with permanent commissions in view.

The R.A.A.F. encourages all the apprentice-trained tradesmen to study and advance their trade status. Not only is he more valuable to the R.A.A.F. when he elevates his status, but his standing in civil life, should he leave the R.A.A.F. after his twelve years' service, would be so much better.

The curriculum includes physical and recreational training as an essential subject. Expert and enthusiastic instructors, assisted by R.A.A.F. officers, coach the lads in many forms of sport. The radio apprentices at Frognall, being situated near a capital city, are the more fortunate. They compete with outside

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[R.A.A.F. Official Photo

The training of radio apprentices is not all theoretical. Some of them are shown here learning the inner secrets of a set that gives them the music they like to listen to. A large percentage of their tuition hours are devoted to practical work

[R.A.A.F. Official Photo

Aircraft apprentices at the R.A.A.F. Technical College, Wagga, N.S.W., put in several hours at technical drawing. They are shown here during one of their many periods covering this subject

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sporting bodies and have been singularly successful. The standard of fitness asked by their instructors has a great deal to do with their success.

Every Frognall apprentice can swim. As soon as they join the school they are taken in hand by a special swimming instructor who gives them instruction winter and summer in the heated pool of the Melbourne City Baths. It is Frognall's proud boast that every apprentice leaves the school with a life-saving medallion of some sort. Frognall has held the junior and senior life-saving titles for Victoria for the past three years.

In their off-duty hours the apprentices are encouraged to take up some hobby, be it so restful as reading a good book. They have their own workshops, where they build model aircraft, surf boards and other handicrafts.

The apprentices are granted six weeks' leave annually, which they normally take during the Christmas vacation period. During the mid-year term breaks they spend their time on controlled holidays, getting to know their country through special hiking tours and visits to industrial centres.

At all times during their training they are subject to strict supervision. Should an eighteen-year-old apprentice wish to smoke, the parents' consent must be obtained before the Commanding Officer gives his final permission. Parents receive bi-annual reports on the progress of their son through the school.

The scheme has grown since it first opened in January, 1948. Both schools have opened their doors to other air forces within the British Commonwealth. In 1950 Pakistan sent some lads to Wagga and Frognall. There are now over sixty lads training at the two apprentice schools. The Royal Pakistan Air Force gains trained personnel and the R.A.A.F. gains too in the inevitable interchange of ideas between the lads.

The Chief of the Air Staff, Air Marshal Sir Donald Hardman, K.C.B., O.B.E., D.F.C., R.A.F., addressing graduating R.A.A.F. and R.P.A.F. apprentices at a recent parade, told them that military aviation has and always will call for the greatest degree of skill. "The margins for error have never been great, and error has invariably meant catastrophe," he said. "There will be no room for the slip-shod tradesman."

The R.A.A.F. apprentice training scheme is now fully productive. Three courses have graduated through both the radio and engineering schools. The R.A.A.F. can guarantee that there is nothing slip-shod in their training, and it is now up to the graduates themselves to keep the record clean.

The old ties are proving strong, and many who served in the R.A.A.F. during the Second World War have sons now carrying on in the R.A.A.F. Apprentice Scheme. And there are many whose sons are not yet of age but who are already earmarked for entry into the R.A.A.F. through Radio Apprentice School, Frognall, or R.A.A.F. Technical College at Wagga, New South Wales.

Each year 145 engineer apprentices begin training at Wagga, and thirty to thirty-five radio apprentices join the Radio Apprentice School, Frognall. In their first year they are paid 62s. a week. In their second year they receive 74s. 6d. (or if they are eighteen or over, 78s.). In the third year of training the weekly pay for the under eighteens is 87s. and for those eighteen and over 90s. 6d. a week. (Australian money.)

Initial clothing issue and all replacements needed during the four-year apprenticeship are free. Deductions from the weekly pay amount to 10s. 10d. each apprentice. Deferred pay takes 5s. and laundry allowance the remaining 5s. 10d. During the final training year, when they are doing their field training at a selected R.A.A.F. unit, the pay is £12 4s. a week, the same as for an Aircraftman First Class in Group 1.

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[*Photo: R.A.A.F. Official Photograph*

R.A.A.F. and R.N.Z.A.F. pilots have been together in Cyprus for a few weeks, although the Aussies are from No. 78 (Fighter) Wing in Malta, whilst the New Zealanders are with No. 14 Squadron

(Left to right) Flying Officer Mike Palmer of Auckland, Group Captain W. Garing of Corryong, Victoria, Flight Lieutenant Geoff Thornton, Flying Officer Les Reading, and Flying Officer Pat McFarland

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ROYAL AUSTRALIAN AIR FORCE

CURRENT EVENTS

R.A.A.F. JETS IN BIG N.A.T.O. MEDITERRANEAN EXERCISES

VAMPIRE jet fighters of the R.A.A.F.'s No. 78 (Fighter) Wing recently attacked British airfields and defence posts in the Suez Canal Zone. The Australian Vampires, which were operating from Cyprus, were taking part in the first phase of Exercise "Session," a M.E.A.F. operation to test the air defences in the area. The Australians were part of the attacking force which for three days probed at the heart of the R.A.F. fighter force.

In addition to the Australians, other R.A.F. units attacked the canal from El Adem and Mafraq in Vampires and Meteors. All air forces in the R.A.F.'s huge Middle East Command were involved in the exercises.

All jets in the attacking force made high-level, low-level and dive-bombing attacks. They also made diversionary raids to draw out defending forces if possible and then clear the way for other attackers to raid the area while defending fighters were either refuelling or in another part of the sky.

Skilled R.A.F. pilots, many with Battle of Britain experience, were defending the zone. They are flying Vampires, Meteor 9's, and Venom fighters. The Venoms —"hotted up Vampires"—were flown out from Britain specially for the exercise. They set up a local speed record on their trip out by covering the 1,000 miles from Malta to Fayid in less than two hours.

New Zealanders from No. 14 Squadron were also part of the Defence Force. A Lincoln bomber squadron, which is in the Canal Zone on another exercise, raided the canal in a later phase of Exercise "Session." Anti-aircraft fire was provided by the R.A.F. Regiment and by British Army and Egyptian units along the canal. R.A.F. Air/Sea Rescue and Desert Rescue planes stood by to make either real or dummy rescues.

The Australian Wing operated from Nicosia to attack towns, villages, camps and airfields between Suez and Port Said during the three days of the exercise. The Vampires which represented the Wing flew eighty-four sorties, each of more than two hours' duration, during the exercise.

The R.A.A.F. Wing in Malta, like all other garrison units on the island, is not part of N.A.T.O. Command, despite the fact that Admiral Earl Mountbatten, of Burma, recently established the headquarters of his N.A.T.O. Mediterranean Command on the island. The N.A.T.O. Command is staffed by special officers who are independent of present Malta forces. The R.A.A.F. Wing is still part of the R.A.F.'s important M.E.A.F., which is commanded by Air Chief Marshal Sir Arthur Sanders, R.A.F.

COMMANDER OF R.A.A.F.'s NEW AIR RACE UNIT

Wing Commander D. R. Cuming, A.F.C. and Bar, has been appointed to command the R.A.A.F.'s No. 1 Long Range Flight, which was recently formed at Laverton to select and train crews for the R.A.A.F. entries in the United Kingdom to New Zealand Air Race.

Wing Commander Cuming has been Commanding Officer of the Aircraft Research and Development Unit at Laverton, Victoria. He is the R.A.A.F.'s outstanding test pilot. He joined the R.A.A.F. as an air cadet in 1938.

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His experience will be invaluable in the great amount of preliminary work which must be done in the Long Range Flight in preparation for the air race from England to Christchurch.

AUSTRALIAN-BUILT GLIDER'S RECORDS

The Australian-built glider, "Kangaroo," has broken three records.

The glider flew 203 miles from Parafield, South Australia, in five and a half hours, breaking the British Empire record for the longest distance ever flown for a two-seater glider, and the British Empire "Goal" gliding record.

It also broke the South Australian height record for a two-seater—soaring at one stage to more than 10,000 feet.

Crew of the glider was Harry Schneider and John Wetherspoon.

Royal Aero Club pilot Arthur Norris towed the glider 650 miles from Mildura to Boggabri, Northern New South Wales—the longest tow ever attempted in Australia.

ANZAC DAY CEREMONIES IN THE MIDDLE EAST

The R.A.A.F.'s No. 78 (Fighter) Wing in Malta took part in several outstanding ceremonies connected with Anzac Day. Its Vampires flew to Tobruk for the ceremony on 23rd April in which members of the Coronation contingent from H.M.A.S. *Sydney* took part.

On Anzac Day a R.A.A.F. guard of honour was present for the first time at the Malta War Memorial. An outstanding personality at this service was the senior Turkish officer at Lord Mountbatten's N.A.T.O. Command Headquarters—Rear Admiral Refet Arnon. Lord and Lady Mountbatten both laid wreaths on the memorial.

R.A.A.F. TRAINS TECHNICIANS FOR NEW JETS

R.A.A.F. technical training today is being swiftly geared to the ten-miles-a-minute jet types which will be flown by R.A.A.F. squadrons next year.

At the R.A.A.F. Technical College, Wagga, New South Wales, the teenage apprentices for R.A.A.F. technical trades have had their courses modernized by instruction in the electronic and jet engine aspects of the Canberra jet bomber and Avon-Sabre jet fighter.

In Melbourne, courses have been started at the Melbourne Technical College for armament fitters, electrical fitters and instrument fitters in electronics. These courses will last six months and will be attended by N.C.Os. of the rank of sergeant and above, the Minister for Air (Mr. William McMahon) stated.

A plan is now being developed for the creation of a special R.A.A.F. jet aircraft training school for tradesmen who will serve in Canberra or Sabre squadrons. Jet pilots also would attend this school for two weeks' technical training before actually flying the new jet aircraft.

Mr. McMahon said that such planning and training were essential at this time, when the R.A.A.F. is being rearmed with 600-700 m.p.h. jet fighters and bombers. More than ever the R.A.A.F. is becoming a highly technical service, he said. Equipment in the modern jet types is intricate and delicate, and requires the highest possible skills in the tradesmen who have to service them.

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MANY SENIOR R.A.A.F. OFFICERS POSTED

Many senior R.A.A.F. officers have been posted in new appointments in several States.

Group Captain J. F. Lawson, O.B.E., who has been Director of Equipment Policy and Administration at Air Force Headquarters, will be Commanding Officer of No. 1 Stores Depot, Tottenham, Victoria. He will be succeeded by Group Captain I. Yeamyn, who has been in command of No. 1 Stores Depot.

Group Captain E. G. Fyfe, D.S.O., who has just returned from a tour of duty in London, will be Staff Officer in charge of Administration at Headquarters, Southern Area, Melbourne. He replaces Wing Commander E. A. Montigue, who goes to Western Area, Perth, as S.O.A. Wing Commander I. P. A. Allen, A.F.C., who has been S.O.A., Western Area, for two years, now goes to East Sale, Victoria, as Administrative Staff Officer.

Wing Commander E. V. Millet, who has been on the Directing Staff of the R.A.A.F. Staff College at Point Cook, Victoria, will command No. 1 Aircraft Depot, Laverton, Victoria. He replaces Wing Commander E. F. Easterbrook, M.B.E., who goes to Maintenance Group Headquarters, Melbourne.

Squadron Leader E. C. Saunders, who has been commanding the R.A.A.F. party at Momote, will go to the Western Area as Senior Air Staff Officer, with acting rank of Wing Commander. He has already been replaced at Momote by Squadron Leader W. M. Coombs, who was Chief Ground Instructor at the Applied Flying Training School.

CITIZEN AIR FORCE EXERCISES AT MANUS AND DARWIN

Fighter aircraft from two Citizen Air Force squadrons flew to Manus and Darwin last month for big-scale exercises. Eight Mustangs from No. 23 (City of Brisbane) Squadron went to Manus for ten days for exercises in co-operation with four Lincoln heavy bombers from No. 82 Wing, Amberley. This was the first overseas operation by the Citizen Air Force since the war. Four Vampire jet fighters and two Mustangs from No. 25 (City of Perth) Squadron flew to Darwin for a fortnight's tropical exercises.

Exercise "Tropic Haven," as the Manus exercises were known, meant the movement of 150 officers and men to the Admiralties, where they operated from Momote aerodrome under active service conditions. Ground staffs and special equipment were flown in by Dakotas of No. 86 Wing.

Five of the eight Mustang pilots who flew jet fighters to Manus were Citizen Air Force pilots. Their keenness tremendously impressed the senior officers on the exercise. More than forty of the ground crew also were Citizen Air Force members.

An interesting part of the training was instruction on jungle survival. The naval instructor told the airmen that "the big bush is not negative. It is friendly to those who understand it, but it is distinctly unfriendly to those who distrust and are afraid of it." No pilot had to put his instruction to the test, however.

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[*Photo: The Dominion*

Squadron Leader H. L. Homer, with his trophies, is congratulated by Chief of the Naval Staff, Rear-Admiral F. A. Ballance, D.S.O., who presented the prizes

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ROYAL NEW ZEALAND AIR FORCE

R.N.Z.A.F. RIFLE CHAMPIONSHIPS

CHAMPION rifle shot of the R.N.Z.A.F. for 1953 is Squadron Leader H. L. Homer, who retained his title after the four-day Air Force Rifle Shooting Championships which concluded at Trentham Military Camp on 19th February. Squadron Leader Homer will represent the R.N.Z.A.F. at Bisley this year.

Squadron Leader Homer is an engineer officer stationed at Air Force Headquarters, Wellington. His skill as a rifle shot is more remarkable when it is considered that he overcame an eye injury as a child.

Although he has had a meritorious career in rifle shooting, Squadron Leader Homer did not take the sport seriously until he was selected in a team which won the Commonwealth Occupation Forces' Championship in Japan in 1948. Past successes include winning the King's Medallion as a cadet at school.

Two R.N.Z.A.F. teams performed creditably in the annual tournament of the National Rifle Association, which followed the Air Force meeting.

The "A" team, consisting of Squadron Leader Homer, Corporal Robertson, Flight Sergeant Nicholson, Flight Sergeant Caughley and Warrant Officer O'Connor, finished second in the Services' team event in which there were fifty teams. Squadron Leader Homer and Corporal Robertson figured in the prize list of the Service Fifty.

R.N.Z.A.F. APPOINTMENTS

The New Zealand Air Board announces the appointment of Group Captain C. C. Hunter, O.B.E., A.M.I.E.E., as Director of Technical Services. Group Captain Hunter, who was formerly Director of Technical Policy, succeeds Group Captain G. H. Procter, who has been on loan from the Royal Air Force since January, 1950, and who has returned to the United Kingdom.

Group Captain A. H. Marsh, M.B., Ch.B., D.T.M. & H.(Eng.), Director of Medical Services, R.N.Z.A.F., has been appointed Honorary Physician to the Queen.

Wing Commander N. A. Vear, O.B.E., R.N.Z.A.F., upon his return to New Zealand from the United Kingdom, where he undertook exchange duties with the R.A.F., has been appointed Chief Technical Officer at R.N.Z.A.F. Station, Ohakea.

Wing Commander D. J. H. Lay, D.S.O., D.F.C., R.A.F., who is on loan to the R.N.Z.A.F., has arrived from the United Kingdom to take up an appointment as Officer Commanding the Officers' School at R.N.Z.A.F. Station, Whenuapai.

A well-known war-time squadron commander, Squadron Leader J. R. Day, M.B.E., has been appointed temporarily to the command of No. 4 (Otago) Squadron, T.A.F. Squadron Leader Day, who has previously commanded this squadron, succeeds the late Squadron Leader G. C. N. Johnson, who was killed recently in an aircraft accident.

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FAIREY GANNET

MORE than ever before Seaborne and Airborne elements are interdependent. The Royal Navy is constantly developing new weapons and new techniques to retain superiority. To attack with these new weapons and develop new methods of keeping the sea lanes clear the Fairey Gannet anti-submarine aircraft has been ordered for the Royal Navy. It has also been ordered for the Royal Australian Navy.

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BOOK REVIEWS

Sailor Malan. By Oliver Walker. Cassel & Co., Ltd., 37/38 St. Andrews Hill, London, E.C.4. 182 pp. Illustrated 10s. 6d.

It is no easy task to write the biography of a man like "Sailor" Malan. His boyhood was little different to that of the sons of any other farmers of Huguenot stock in South Africa. And when, many years later, he had become one of the greatest fighter pilots of World War II, his greatness was not based on the sort of devil-may-care, Hollywood-style exploits that make raw material for hero-worship.

On the contrary, Group Captain A. G. Malan, D.S.O. and bar, D.F.C. and bar, was a cool, calculating killer; a believer in teamwork between every member of a squadron rather than a high total of "kills" by individual aces. That he himself achieved a total of 32 victories, second only to Group Captain "Johnny" Johnson, merely proves that he followed closely his famous "Ten Commandments" for air combat and, by doing so, managed to survive five years of war in the air—long enough to shoot down a large number of the enemy. Indeed, there is a remarkable similarity between the leadership and tactics of Malan and those of his illustrious World War I predecessor in command of No. 74 Squadron—Major Micky Mannock, V.C.

It is to the credit of Mr. Walker that, although his biography is not as exciting as it might have been, it is never boring. Indeed, the very fact that accounts of some of Malan's war-time actions are quoted verbatim from his combat reports, instead of being "glamourized," make them all the more valuable to Service readers. In addition, his "Ten Commandments" are in general, as applicable to present-day jet combat as to the Spitfire-Messerschmitt duels for which they were compiled.

This does not mean that the book lacks a lighter side. The account of young Malan's escapades aboard the strictly-disciplined training ship *General Botha* cannot fail to produce a few quiet chuckles; and there are some amusing stories of Malan's pre-war adventures in Gauntlet and Fury biplane fighters.

But, on the whole, it is a serious book which can only enhance the reputation of a pilot whom even Lord Dowding found heroic. Captain Cuthbert Orde, the famous war-artist, similarly impressed, wrote, "I do not think that Malan could join a squadron without improving it, however good it was. Not by sword-waving, but by strength of mind and integrity that are at once recognizable and effective. Don't imagine from this that he never laughs; but he has a serious mind and is intent on winning the war."

Since 1945, as leader of the "Torch Commando," he has waged another war against the government of his namesake, Dr. Malan, in defence of the coloured people of South Africa. Yet, perhaps "another war" is a misnomer, for to "Sailor" Malan, his objective of freedom and equality for all people must seem merely like a continuation of the war against Hitlerism.

J. W. R. T.

Across the Parallel. By George Odgers. William Heinemann Ltd., 99 Great Russell Street, London, W.C.1. 239 pp. Illustrated 21s.

Life was good for the men of the Australian 77th Fighter Squadron on 24th June, 1950. They were enjoying quietly the life of occupation in Southern Japan; and they believed they would soon be going home. Then, at 4 a.m. next morning the Communist troops of North Korea crossed the 38th Parallel, and within a week the Australians, as members of the United Nations, were back at war.

It was a strange war at first, because pilots of "Double Seven" had breakfast with their wives and families at their base in Japan, went out over Korea in their Mustang fighters, shooting, rocketing and bombing the enemy, and then returned home in time for tea. But the shooting was not one-sided—some of the pilots did not come back—and after a time the wives were sent home to Australia and the squadron moved to Korea.

This account of its achievements and experiences from July, 1950, to October, 1952, could hardly be bettered. It is written factually, pulling no punches when criticism of men or material is merited; and, although written with obvious pride by an Australian journalist, it is lacking entirely in starry-eyed sentimentalism.

The pilots of No. 77 Squadron emerge as heroes because they were heroes and not because Mr. Odgers has supplied them with shining armour. Similarly, tribute is paid to the gallant, little-publicized efforts of the U.S. helicopter rescue teams who snatch

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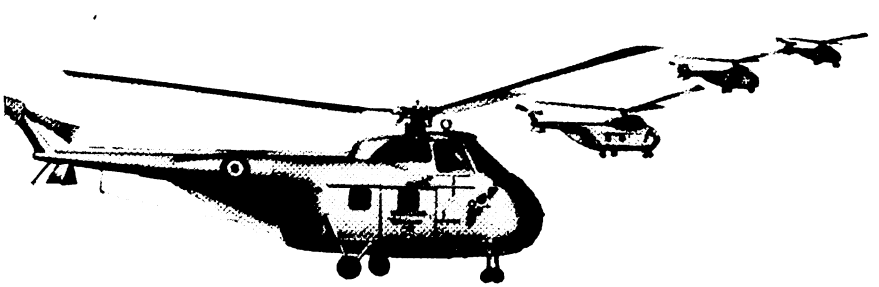

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shot-down pilots from behind the enemy lines; and to the "mosquito" crews who, flying unarmed training aircraft, search out and mark targets for fighter-bomber attack.

Mr. Odgers discusses the politics of the war with dry Australian humour. Quoting North Korean claims that they were merely defending themselves against attack from the South, he comments, for example, that: "it looked very much as though the South Koreans were using the seat of their pants to kick the toe of the North Korean boot."

But he also gives a clear picture of the tragedy of Korea—a country that hardly exists now that its friends have preserved its freedom. There are lessons to be learned from mistakes—especially the oft-repeated mistake of shooting up allies on the ground through poor navigation and target identification. There is food for thought in the almost insuperable problem of beating with air power an army whose soldiers carry simply a rifle and a bowl of rice over hundreds of miles of mountain trails; and in the lesson that the finest pilot in an obsolescent fighter is no match for a less-skilled airman in the latest type of swept-wing jet.

J. W. R. T.

Himmler. By Willi Frischauer. Odham Press Ltd., Long Acre, London, W.C.2. 270 pp., Illustrated 16s.

This biography of Heinrich Himmler, most sinister of all Nazis, is a companion volume to Willi Frischauer's earlier biography of Goering. After reading *Goering*, the average reader was probably left with some feeling of pity for the once-respected fighter-pilot, devoted husband and genial diplomat whose ambition drove him relentlessly to such a terrible end. But there will be no pity in the hearts of those who read this 270-page indictment of Heinrich Himmler.

Its pages overflow with inhumanity, horror and perversion. Himmler, it seems, had no virtues, not even loyalty to his wife. His power stemmed from the fact that he shared with his Fuehrer one great ambition—to destroy the Russian and Jewish peoples and so lay the foundations of a world governed by blond, handsome young Aryans, uniform in appearance and mentality. He imagined himself a reincarnation of Heinrich I of Bavaria, and saw his S.S. Black Guards as crusaders, destined to lead Germany to greatness, over the bodies of millions of victims of his concentration camps.

Seldom was any man surrounded by more sadistic, uncouth, ruthlessly ambitious lieutenants than Himmler's senior S.S. officers, only one of whom shows for a brief interval any sign of real courage and human feelings. Strangely, that one was Reinhard Heydrich, after Himmler the most hated of all S.S. leaders, whose eventual assassination led to the massacre at Lidice. In 1940, Heydrich spent every free hour learning to fly so that he could fight with the Luftwaffe during the Norwegian campaign, and later in Russia. And during those interludes he became carefree, happy, a typical "fighter boy"—strange testimony to the influence that the comradeship of flying and air fighting can have on even such a man.

Himmler is a frightening book to read, not merely as a record of past atrocity, but as a warning for the future, because scores of thousands of S.S. men are now free in Germany and one cannot help wondering if these are the allies we plan to arm to help defend the cause of freedom and decency.

J. W. R. T.

The Rommel Papers. Edited by B. H. Liddell Hart.

This book has already aroused considerable controversy among critics and reviewers, and also in the general reading public. The contestants are divided into two extreme schools. On the one hand are the partisans of Rommel, those who are referred to by their opponents as "members of the Rommel cult" who claim that from his exploits and his writings Rommel emerges as the greatest military figure of the Second World War; indeed, some go further and add of all wars. On the other side is the school of thought that holds that the whole legend is grossly exaggerated; that it is all representative only of the odd national trait by which, as soon as we have defeated an enemy, we praise him to the skies as one of the greatest soldiers of all time, for example, Napoleon, Ludendorff and so on; and that, in fact, Rommel was nothing more or less than a bold and successful tactician, a modern Prince Rupert, with all his virtues but with all his defects. This feeling is shared by the critic who grumbled, "Of this latest school of military immortals one wonders whether it is possible to attain membership without the essential qualification of final and resounding defeat in war."

If there is a Rommel cult, Liddell Hart is its high priest. In his introduction to "Panzer Leader" one has already seen the adulation that Liddell Hart bestowed on Guderian. In

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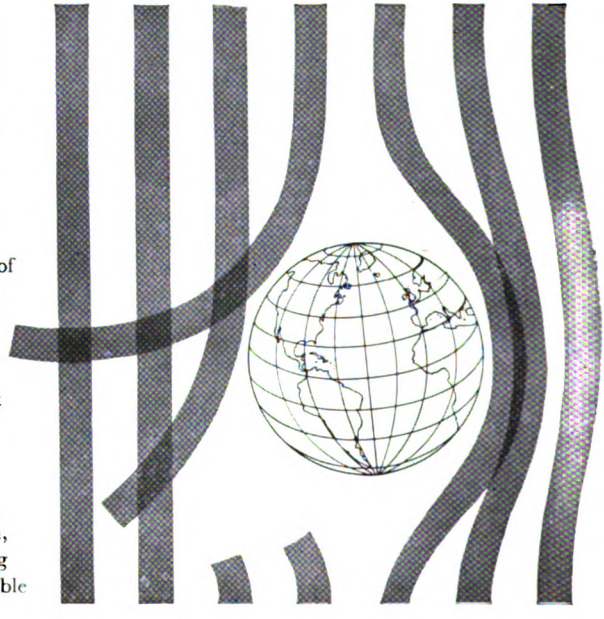

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his attitude to Rommel this adulation seems, if possible, even more intense. Whatever the true facts of the case, one is left with the unworthy but inevitable feeling that Liddell Hart's praise for his idols is at least partly attributable to their often expressed approval of his own military theories and writings; there is a rather suspicious atmosphere of "you slap my back and I'll slap yours," and the need for an impartial assessment rather than a partisan view makes itself felt.

That Liddell Hart's approach is partisan becomes clear in the opening sentences of his introduction to "The Rommel Papers." He states categorically "No commander in history has written an account of his campaigns to match the vividness and value of Rommel's." Shades of Julius Cæsar and Lawrence of Arabia ! But as if to confirm the intensity of his views, Hart quotes both these latter authors in immediately succeeding paragraphs. Again, in his introduction we find the statement, "The outstanding feature of Rommel's numerous successes is that they were achieved with inferiority of resources and without any command of the air." Anyone who served in France in 1940 and found himself in the way of Rommel's Panzer columns, backed by the Stukas and Messerschmitts, will find the latter part of this statement hard to accept. Indeed, Rommel himself refutes it, on page 197, when discussing one of his earlier African campaigns; he says, "As far as the air is concerned, it would probably be true to say that, apart from a few fluctuations on either side, the German-Italian air force held the balance with the R.A.F."

A reviewer should try to ignore such examples of prejudice and other distortions by the editor, e.g., his account of the preliminaries to the Greek campaign on page 96, and to concentrate impartially on the merits and defects of the book itself. When this is done, the conclusion is inevitably reached that both book and author emerge from close and impartial inspection with the greatest credit. Rommel is already widely acknowledged as a brilliant tactician, born improviser, and an unparalleled military opportunist. In this book his over-all grasp of strategy, as well as tactics, is convincingly demonstrated, and all the more irrefutably because his early death prevented later revision of these contemporary accounts and the application of post-war hindsight which has enabled so many military historians to turn their geese into swans. But it is as a character as well as a soldier that Rommel is seen at his best in these pages. He was genuinely gallant and chivalrous, appreciative of the best in both ally and enemy (he does not join in the universal condemnation of the Italians, but pays admiring tribute to the exploits of the Italian soldier in Africa, poorly equipped and abominably led as he was); he was quick to indignation, but also to amend any slight or injustice into which his anger had led him, and above all was genuinely imbued with the love for, and understanding of, his men which is the key to all leadership.

In the circumstances, suffice it to say that Rommel's pen proves worthy both of his personality and his achievements. He describes his campaigns graphically yet thoroughly, methodically but without tedious complications, expertly but without the military jargon which in this type of writing so often baffles the layman. This is indeed a great book about the great deeds of a great man. Perhaps it would be unkind to add that its merits are more likely to be obscured than enhanced by the efforts of its editor.

C. N. F. N.

Specially Employed. By Maurice J. Buckmaster. The Batchworth Press. Price 12s. 6d.

There are two general categories into which "cloak and dagger" books may be divided. First of all, there is the first-hand account by the agent concerned, or his appointed biographer, of direct action in this field, espionage, sabotage, capture, torture, escape, all the ingredients of a real life thriller. Secondly, there is the inside story of the organization behind these exploits, describing the administration and the system which controlled the agents and their activities, trained them, and provided their weapons. The first class of book is typified by the stories of Odette, Peter Churchill, and "The White Rabbit," the biography of Yeo-Thomas: the second class is exemplified by the recently published "London Calling North Pole," the story of German counter-espionage.

Maurice Buckmaster's book falls somewhere between the two classes, and in doing so falls between two stools. The author was in command of the organization which sustained the subversive activities of patriots in France by sending them liaison officers and supplies. He himself did not operate in France and, as a result, is compelled to tell us the story at second-hand. He was, as it were, the spider in the web which held together the manifold threads of the organization, and his contacts with the various agents were unique in that it was of the essence of this type of organization that inter-connection and knowledge of each other's work was reduced to a minimum. In the circumstances, it might have been expected that the author's story would be of unusual interest and would vary a great deal in content from the stories of individual agents.

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Unfortunately, this does not prove to be the case. The book turns out to be merely a rather disconnected series of episodes describing events in the operational careers of various agents and resistance groups. It is apparent that the author does not feel himself at liberty to describe in any detail the co-ordinating system under which these operations were carried out. This is quite understandable, being presumably actuated by security motives, but, as a result, most of the interest of the "spider in the web" type of story is lost. Since, naturally, the excitement of personal reminiscence and experience is also absent, the book lacks much of the interest and attraction of other stories on the same subject. The author himself seems to have appreciated the limitations under which he is working, and with due modesty has avoided any personal claim to merit or achievement, though clearly his work and his position must have been of the utmost importance in the organization, and indeed to the country as a whole. This modesty has led him rather to write down the seriousness and intensity of feeling, the mental and spiritual strain, that must have accompanied this type of war-time work and he has adopted a light and conversational style. He has inserted also a good deal of humour into the telling of his story, but though the strain must often have been relieved by such moments of the ridiculous, the humour here often seems somehow unsuitable and artificial.

Generally speaking, the reader may well find that he finishes this book with a vague sense of disappointment, not in what was accomplished by the author and his associates, but more perhaps on the grounds that his story has not done justice either to himself or his subject.

C. N. F. N.

Krigen i Norge 1940: Operasjonene i Rogaland og Haugesund-Indre Hardangeravsnittet. Den Krigshistoriske Avdeling. Oslo 1952.

The War History section of the Norwegian Ministry of Defence has recently published the first volume of a detailed history of the operations conducted by their forces in the brief campaign of April-June, 1940. This is devoted mainly to the very small-scale fighting which took place in the mountainous area of the south-west coast, isolated and inevitably ineffectual, and as such of limited interest to the public outside Norway. But it also includes the first full account of the German paratroop attack on the Sola airfield, Stavanger. It took them one hour to gain possession of what was not only the single modern airfield in Norway but the nearest base in Europe for air attack on Scapa Flow.

The prime cause of the German success was of course the novelty of the method employed, coupled with the fact that the troops available for the defence of the Stavanger area consisted of only one battalion of infantry: this had arrived on the scene less than a fortnight previously and its rank and file had had a maximum of thirteen weeks' training. But some of the other contributory causes are instructive. No clear priorities had been worked out in advance, with the result that the bulk of the military force available was being moved away from the neighbourhood of the airfield to provide against a hypothetical attack from the sea at the moment when the attack from the air came in. Again, command of the airfield was vested in the Officer Commanding of the Bomber Wing, who at that juncture had just received orders to withdraw with his aircraft to eastern Norway, leaving a junior officer in charge. The arrangements for destroying what could not be defended were equally unsatisfactory. The civil air company, for which the field was constructed, had objected—this was in 1937—to any built-in preparations for demolition. Something might, however, have been achieved through measures taken in the last anxious twenty-four hours, but there were fears that they might be impeding eventual assistance from the R.A.F.; there was the bureaucratic consideration that orders to prepare demolitions ought to proceed from the Commander-in-Chief; and the explosives, which were actually ordered from civilian stocks at Stavanger, eight miles away, failed to arrive.

It is clear, nevertheless, from the good use made of the solitary concrete machine-gun post, with which Sola was at this time equipped, that, given the means, the Norwegians did not lack the men and the will for self-defence. The book also includes a sketch-map of the airfield, its runways, buildings, and defences (no A.A. gun bigger than a machine gun), which should deter the reader from judging this episode in terms of the air war as we knew it later on.

T. K. DERRY.

The Early History of Flight.

This is a new title in a series of film-strips on general science, mainly intended for use in schools, but as it covers all aspects of the history of flight—visionary, prophetic and factual, it has an interest to all who are air-minded.

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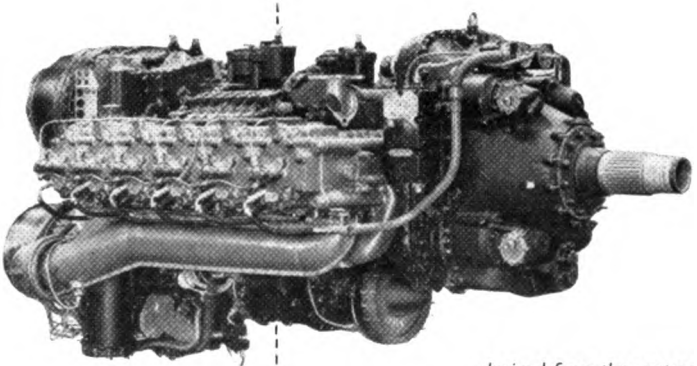

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The Shape of Wings to Come. By David Keith Lucas. (Short Bros. and Harland Ltd., 1952). Paper read before the meeting of the British Association in Belfast, 1952.

Rockets, Missiles and Space Travel. By Willy Ley (Chapman & Hall, London; 30s.).

SECOND WORLD WAR

Specially Employed. By M. Buckmaster. (Batchworth Press, London, 1952; 12s. 6d.). The story of British aid to French Patriots of the Resistance.

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The Saar, Battleground and Pawn. By F. M. Russell. (Stanford University Press (O.U.P.); $5.).

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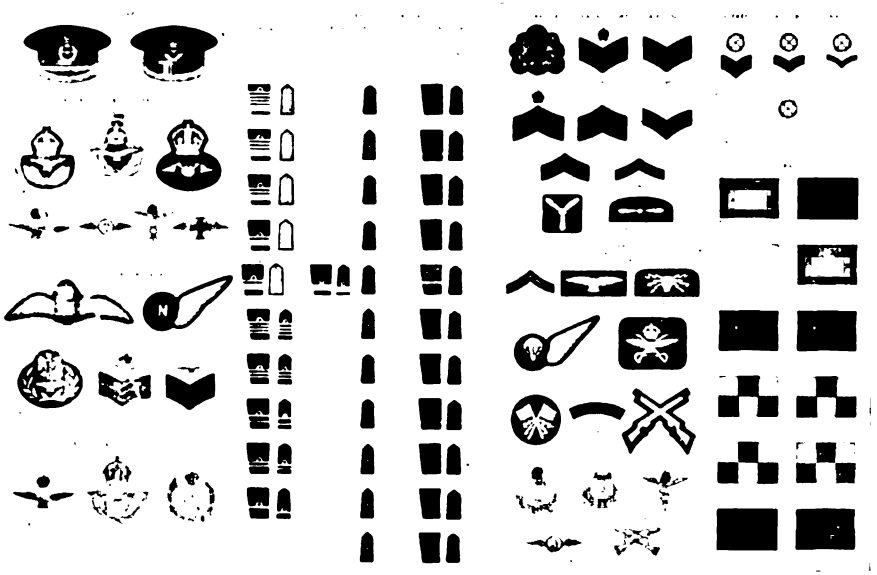

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